UNIVERSITY OF CALIFORNIA

Santa Barbara

# Communicating Distance: What This Means for Environmental Public Opinion

A dissertation submitted in partial satisfaction

Of the requirements for the degree Doctor of Philosophy

in Political Science

by

Heather E. Hodges

Committee in charge:

Professor Eric R.A.N. Smith, Co-Chair

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September 2015

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September 2015

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This work would not have been possible without the support of my family and guidance from my committee members.

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## EDUCATION

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Committee Members: Eric R.A.N. Smith (co-chair), Sarah Anderson (co-chair), Bruce Bimber
Summary: Investigates how perceived psychological distance relates to energy perceptions and political communication via three data sources; provides evidence of distance as a moderator of framing effects

Master of Environmental Science and Management (2010) University of California, Santa Barbara, Donald Bren School of Environmental Science and Management
Thesis Title: Optimal Design and Management of a Commercial Fishing Cooperative for the San Miguel Island Red Abalone Fishery

B.S. (2006) University of Redlands, Biology Department

## TEACHING AND RESEARCH INTERESTS

My research focuses on political behavior and communication in the case of environmental policy.

- The effects of psychological distance on opinion formation and communication effects
- How distance is manifested in social media, bureaucratic decision-making, and policy

My teaching experience ranges from American politics, to public policy, political communication and psychology, and environmental studies.

- Scheduled to teach Environmental Politics and Policy, Media and Politics, Intro. to Public Policy, and Navigating Wildfire Policy (2015, 2016) Reed College
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## PUBLICATIONS

**Hodges, H**. & Stocking, G. (Forthcoming) "A Pipeline of Tweets: Environmental Movements' Use of Twitter in Response to the Keystone XL Pipeline." *Environmental Politics*.

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**Hodges, H.**, Kuehl, C., Smith, E.R.A.N., Sparks, A. (Forthcoming) "Delivering Energy (often) Requires Public Opinion." Delivering Energy Law and Policy in the EU and US. R.J. Heffron and G. Little, Eds. Edinburgh: Edinburgh University Press.

**Hodges, H.E.** and Smith, E.R.A.N. (2013) "Public Reaction to Energy, Overview." Reference Module in Earth Systems and Environmental Sciences. Elsevier. On-line: 01-Nov-13 doi: 10.1016/B978-0-12-409548-9.01438-X.
Anderson S., **Hodges H.**, and Anderson, T. (2013) "Technical Management in an Age of Openness: The Political, Public, and Environmental Forest Ranger." *Journal of Policy Analysis and Management.* 32(3): 554-573.

Chen, X., Emery N., Garcia E.S., Hanan E.J, **Hodges H.E.,** Martin T., Meyers M.A., Peavey L.E., Peng H., Santamaria J.S., Uyeda K.A., Anderson S.A., and Tague C. (2013) "Perspectives on Disconnects Between Scientific Information and Management Decisions on Post-fire Recovery in Western US." *Environmental Management*. 52(6):1415-1426.

## CONFERENCE PRESENTATIONS

"Going national – how locally oriented environmental groups broaden their audience without loosing their base," Political Communication Pre-Conference, American Political Science Association Annual Meeting (2015), San Francisco, California, (with Galen Stocking)

"Salience of wildfire risk and management of public lands," American Political Science Association Annual Meeting (2015), San Francisco, California, (with Sarah Anderson, Andrew Plantinga, Matthew Wibbenmeyer)

"Political communication in space," 3rd Annual UCSB Environmental Politics Conference (2015) Santa Barbara, California

"Fracking in US and UK: a comparison of public discussion of fracking on Twitter in the US and UK," Annual Conference of the Society for Applied Anthropology (2015) Pittsburgh, Pennsylvania, presented by Ariel Hasell

"Framing Fracking: An examination of the public and elite framing of fracking in social media," Annual Conference of the International Communication Association (2015), San Juan, Puerto Rico, presented by Ariel Hasell

"Salience of wildfire risk and the management of public lands," Searle Workshop: The Politics and Economics of Wildfire Policy (2014), Santa Barbara, California, (with Sarah Anderson, Andrew Plantinga, Matthew Wibbenmeyer, and Maribeth Todd)

"The influence of distance on opinion formation in the case of energy," American Political Science Association Annual Meeting (2014), Washington, D.C.

"Confidence in local, national, and international scientists on climate change," American Political Science Association Annual Meeting (2014), Washington, D.C., (with Eric R.A.N. Smith, Aaron Sparks, & Sarah Oliver)

"Measuring sustainability literacy: an initial analysis," CA Higher Education Sustainability Conference (2014), San Diego, California, (with Eric R.A.N. Smith, Katie Maynard, Colin Kuehl, and Aaron Sparks)

"Weak cues and strong rhetoric: how unstructured opinions reflect elite messages," Midwest Political Science Association Conference (2013), Chicago, Illinois, (with Mary Collins)

"Weak cues and strong rhetoric: how unstructured opinions reflect elite messages in energy policy," Environmental Politics and Policy Annual Conference (2013), Santa Barbara, California, (with Mary Collins)

"Technical management in an age of openness: the political, public, and environmental forest ranger," Midwest Political Science Association Conference (2012), Chicago, Illinois, (with Sarah Anderson)

"Technical management in an age of openness: the political, public, and environmental forest ranger," Western Political Science Association Conference (2012), Portland, Oregon, (with Sarah Anderson)

"A pipeline from canada: fulfilling the american dream or just plain risky?" Bren School Ph.D. Symposium (2011), Santa Barbara, California, (with Mary Collins)

## WORKING PAPERS AND PROJECTS

"Using distance to account for attitude formation in the case of U.S. energy policy," Under review (with Mary Collins)

"Exposure to difference via frames on Twitter," (with Ariel Hasell)

"Whose priority is it? what determines spending choices on fire risk reduction projects by federal land management agencies," (with Sarah Anderson and Stuart Kasdin)

"Assessing household water consumption and motivating conservation," (with Sarah Anderson, Cameron Brick, Eric R.A.N. Smith, Phil Ehret, and Colin Kuehl)

## GRANTS AND AWARDS

Chancellor's Sustainability Graduate Research Program Summer Grant (2015), Academic Senate, University of California, Santa Barbara, ~$4850, (with Colin Kuehl and Aaron Sparks)

Research Grant Recipient (2015), Department of Political Science, University of California, Santa Barbara, $350, (with Colin Kuehl)

Fee Fellowship (Summer and Fall 2014), Department of Political Science, University of California, Santa Barbara

Distinguished Teaching Assistant Award (2014), Department of Political Science, University of California, Santa Barbara

Manzer-Wesson Award (2013), Department of Political Science, University of California, Santa Barbara, Best paper written in a graduate seminar

Travel Grant Recipient (2012, 2013, 2014), Department of Political Science, University of California, Santa Barbara $500

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## TEACHING EXPERIENCE

Instructor of Record, University of California, Santa Barbara
Politics of the Environment (Winter 2015)

Guest Lectures and Talks, University of California, Santa Barbara
Graduate Student Showcase, Best Three-Minute Research Talk (2014), "Method to Our Madness: Towards a Better Understanding of the Public's Role in Policy"
Politics of The Environment (2014), "Managing the Environment through Market Based Instruments"
Politics and Communication (2013), "Political Incivility"
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Outstanding Teaching Assistant Award Nominee (2012)
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**REFERENCES** provided upon request.

ABSTRACT

Communicating Distance: What this Means for Environmental Public Opinion

by

Heather E. Hodges

Political scientists have spent decades providing explanations for political support of policy proposals. On the one hand, individuals appear to concern themselves with the personal risks or benefits of a project; on the other, their appraisals appear to be more ideologically based, ultimately aligning with one's party. While many argue this is a product of an unknowing and uninterested public, simply swaying one direction and then the other, this research promotes a different stance: perceived psychological distance helps to explain variation in political attitude formation, accounting for which considerations an individual will turn to in one instance and which they will rely on in another when developing their stance of communicating the issues.

This dissertation asks how perceived psychological distance relates to energy perceptions and political communication. According to the Construal Level Theory (CLT) of psychological distance, from social psychology, evaluations and behaviors differ based on the extent to which something is perceived as psychologically "proximate" or "distant" (Trope & Liberman 2010). Psychological distance has yet to be applied to political attitudes and communication and yet its utility is intuitive — 1) politicians strategically communicate

to make issues more "proximate" or "distant" and 2) political perceptions and actions likely vary depending on the extent to which they are viewed as "proximate" or "distant." To investigate this question, this research maps psychological distance onto energy politics across two domains, public opinion and communication.

The first study relies on a survey of residents along the proposed Keystone XL route. Half of the respondents are asked about their attitudes toward Keystone XL (the proximate issue) and half are asked about their attitudes toward offshore oil drilling (the distant issue). Each of the respondents is given objective information about the issues, with half of the sample also receiving a pro-development frame emphasizing the benefits of the project. Results indicate that distance serves to moderate attitudes, with those asked about the proximate issue exhibiting a significant framing effect compared to those asked about the distant issue who were unmoved by the frame.

The second study assesses the extent to which online communications reflect the expectations of CLT. Analysis of over a million tweets related to Keystone XL finds little difference between how those living more proximate to the issue frame it compared to those living further away. In general, both appear to prefer concrete frames related to jobs, local economy, spills and environmental risk. Similarly, manual coding from the Linguistic Category Model (LCM) suggests the abstractness of the tweets also do not vary due to distance. However, the expectations from CLT do appear to apply to retweets. In this case, individuals more proximate to the pipeline were more likely to retweet concrete tweets and those further from the pipeline more likely to retweet abstract tweets. This suggests the persuasiveness of a tweet varies by distance.

The final study applies CLT to political advocacy groups, arguing they should recognize differences in persuasiveness due to the location of the target audience and adjust their strategies accordingly. I identified local and national advocacy groups in favor of or opposed to the pipeline and analyzed their Twitter communications as well as the effectiveness of these communications. According to the results, local and national groups rely on a mix of frames in order to appeal to a broad section of the U.S. public (those living closer or further from the pipeline). However, this is less so the case for the pro-Keystone XL groups, likely due to the fact that they have fewer resource constraints and are therefore not as reliant on broad public support. The study also finds that in general these frames tend to be more concrete than abstract, contrary to the expectations of CLT. At the same time, the public appears to prefer concrete frames, retweeting these more often than abstract frames.

This work examines the relationship between physical proximity and public opinion in order to better understand some of the previously unexplained variation in environmental public opinion. Together, the studies suggest that distance matters to public opinion and political communication, but the relationship is highly context dependent. In the media effects setting, distance moderates framing effects. Similarly, when exposed to online communications from elites, members of the public are more or less persuaded by these based on their geographic proximity to the policy issue. However, this is not similarly reflected other communication settings, such as political advocacy group activities and within network online communications. Thus, other facets of the political environment appear to influence the role of distance in public opinion and political communication. The messiness of politics requires additional investigation into when distance helps us account for political variability.

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**Introduction: Applying Distance to Political Science**

The turmoil in Syria is a distant issue to the vast majority of the U.S. public. There are other issues that present more obvious and relevant implications, such as the republican primary, immigration reform, drought, and wildfire. These issues, unlike political unrest abroad, are experienced directly, hear and now, by many members of the U.S. public. As such, the evaluation process is quite different. This poses implications not only for political attitude formation in the case of Syria, but can be extended to other facets of politics. In political science, this variation in processing is likely seen as related to the salience of the issue. However, salience is not a theory per say – it does not explain how the evaluative process might work now when we can expect reliance on one set of considerations over another.

According to the Construal Level Theory (CLT) of psychological distance, from social psychology, something perceived as further away is considered/construed based on its abstract features whereas something perceived as more proximate is evaluated/construed based on its concrete features (Trope & Liberman, 2010). In other words, CLT provides a general framework for how salience may operate and when we can expect to see items construed based on particular considerations over others. Psychological distance may be spatial, temporal, social, or hypothetical, whatever the case, the implications for mental processing are the same (Trope & Liberman, 2003).

When images of a drowned Syrian toddler surfaced and received international media attention, the turmoil in Syria was likely made more proximate for the U.S. public, which ultimately affects how they think about the issue, their opinions on U.S. involvement, and how they talk about it with friends and family. This anecdote serves to portray how distance can help account for variations in political attitudes and communication. In this research,

Construal Level Theory provides the theoretical foundation for the relationship between distance and mental evaluation in the case of energy policy. Although there is already evidence in support for CLT for behavior and attitudes related to a host of public issues (see Chandran & Menon, 2002; Kim, Rao, & Lee, 2009; White, McDonnell, & Dahl, 2011; Spence, Poortinga, & Pidgeon, 2012), most of this is confined to consumer behavior research and primarily evaluated in the lab with relatively little extension to real features of the political environment.

Considerable debate exists over the importance of various considerations on public opinion and political communication. As soon as one study finds a significant relationship between political attitudes and a component of ideology another shows a limited relationship, with attitudes predicted by something else. This work moves beyond the debate, arguing that distance can account for when we might see a greater reliance on certain considerations over others. Specifically, it asks: how does distance explain variations in energy perceptions and political communications.

Although distance can be operationalized in a number of ways, this works focuses on geographic distance. Politics and political processes vary spatially, often affecting members of the public differently based on where they live. For example, consider the case of immigration. The types of considerations relied on by someone living in southern Arizona are likely distinct from a resident of Colorado. While the issue is the same, the features of the issue used to form an attitude about it differ due to geographic distance. In this case, Construal Level Theory posits low-level, concrete considerations are more likely to apply in the proximate scenario and high-level, abstract considerations more likely to apply in the distant scenario. These high-level, abstract considerations are known to align with underlying

values (Liberman, Trope, & Stephan, 2007; Goldsmith, Newman, & Dhar, 2013), with concrete features corresponding more to the 'details' of the issue.

The relationship described above should not only account for variations in attitude formation, but should also be reflected in public and group communications. If distance matters to how political actors think about issues, then its influence should be visible in at least three aspects of the communication process. Distance may affect how media frames alter public attitudes, it could influence how people talk about policy issues, and it even could affect how advocacy groups create messages. Distance could therefore be relevant in a number of ways.

This work explores four primary hypotheses: 1) attitudes regarding proximate issues are more susceptible to the provision of information or frames than attitudes regarding distant issues; 2) communications regarding proximate issues utilize more concrete frames and content, with communications regarding distant issues rely more on abstract frames and content; 3) political advocacy groups put forth a mix of frames to appeal locally and nationally; 4) those living closer to a policy site view concrete frames as more persuasive compared to those living further away who see abstract frames as more persuasive.

These hypotheses are tested in the context of the Keystone XL Pipeline. The proposed pipeline is an expansion to the existing Keystone Pipeline and will transport tar sands oil from Alberta, Canada through Montana to refineries in Oklahoma and Texas. Due to the specificity of the route, the costs and benefits vary by geographic distance, between those living closer versus those living further away from the pipeline. This allows for an appropriate case to test CLT. Three studies were designed to evaluate the relationship between distance, political attitudes, and political communication.

Chapter 1 utilizes a survey experiment to assess how distance moderates framing effects. Respondents along the proposed pipeline route were asked about one of two issues, the proximate issue of Keystone XL and the distant issue of offshore oil drilling. Half of the sample was exposed to a pro-development frame. In line with the expectations from CLT, the provided frame affects attitudes regarding Keystone XL, but not those regarding offshore oil drilling. This suggests that proximity results in a greater reliance and uptake of the frame provided. Although when asked about offshore oil drilling the language of the frame was the same, attitudes did not exhibit similar effects, and were instead more in line with party identification. A version of this chapter, co-authored with Mary Collins, is currently under review at *Political Psychology*.

In Chapter 2, I analyze tweets and retweets within and outside the proposed pipeline route to determine differences in communications due to distance. In general, I review three relationships. First, as the pipeline should be perceived as more proximate to those living along the route it should also be more salient and thus, discussed more by these individuals. Geospatial analysis revealed no statistically significant difference in terms of communication volume for those along the route compared to those further away. Second, individuals within the affected states should use concrete, low-level frames more than abstract, high-level frames compared to individuals in the distant states, visa-versa. Again, no statistically significant relationship between frame use and distance was found. Third, I predict that communications coming from proximate states would be more concrete and those coming from distant states more abstract. The findings here were mixed. Although an individual's tweet does not reflect this, what they choose to retweet does. Those living within the proximate states are more likely to retweet concrete tweets whereas those living within the

distant states are more likely to retweet abstract tweets. This suggests that the public may not be as cognizant of their own tweets, but know it when they see it – those tweets matching mindset to location are more persuasive than those that do not. A version of this chapter was presented at the UC Santa Barbara Environmental Politics Conference, under the title 'Political communication in space.'

Chapter 3 applies CLT to a theory of political advocacy groups. In general, groups are motivated to increase support. They therefore seek out opportunities to communicate information to the public, other groups, and elites. Construal Level Theory tells us that these communications will vary in their effectiveness depending on the distance between the recipient and the policy issue. Thus, I argue group strategies will reflect this fact in combination with other considerations. Specifically, I expect that both local and national groups will attempt to appeal to a broad section of the U.S. public; however, more conservatively oriented groups, likely having corporate ties, will be less likely to do so as they are not as reliant on diverse public support. Analysis of thousands of tweets coming from local, national, pro-Keystone XL, and anti-Keystone XL lend support for this expectation. It appears as though both local and national groups are taking advantage of new opportunities to appeal broadly. Nonetheless, this is less the case for the pro- groups, as they likely pursue alternative means of affecting policy. I presented an extension of this work with Galen Stocking at the APSA Political Communication Pre-Conference.

I also expect that concrete frames coming from groups will appeal more to those closer to the proposed route than abstract frames whereas abstract frames will appeal more to those further away than concrete frames. The results do not support this expectation. Regardless of distance from the pipeline, individuals are more likely to retweet concrete

tweets coming from the anti- and pro- groups. There is a clear preference for information portraying the concrete costs and benefits of Keystone XL.

The following takes an initial step towards an understanding of the importance distance plays in public opinion. Each chapter assesses a different political communication process through the lens of distance. Together, the findings indicate that distance matters, but is context dependent. Distance appears to be more relevant to media effects than how individuals talk about policy issues with one another or the communication strategies deployed by advocacy groups. The results serve to motivate additional works examining the potential significance of distance to political science, as will be discussed in the conclusion.

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White, K., MacDonnell, R., & Dahl, D. W. (2011). It's the Mind-Set That Matters: The Role

of Construal Level and Message Framing in Influencing Consumer Efficacy and Conservation Behaviors. *Journal of Marketing Research*, *48*(3), 472–485. doi:10.1509/jmkr.48.3.472

## ONE: The Influence of Distance on Attitude Formation in the Case of Energy

### Introduction

Academics, pundits, and the media commonly identify instances of variation in public opinion. In one circumstance the public is in favor of more regulation on the other it is opposed. The minute race is perceived to be a minimal issue in the U.S. a major event alters our thinking. Similarly, in the case of energy policy, on the one hand individuals appear to concern themselves with the personal risks or benefits of a project, on the other their appraisals appear to be more ideologically based, ultimately aligning with one's party. While many argue this is a product of an unknowing and uninterested public, simply swaying one direction and then the other, this research promotes a different stance: perceived psychological distance helps to explain variation in political attitude formation, accounting for which considerations an individual will turn to in one instance and which they will rely on in another when developing a stance on the issue.

According to the Construal Level Theory (CLT) of psychological distance, distance directly affects how individuals think about issues, events, or items. CLT hypothesizes that evaluations and behaviors differ based on the extent to which something is *perceived* as psychologically proximate or distant (Trope & Liberman, 2010). Based on the theory, proximate issues are evaluated (construed) in a concrete fashion utilizing relevant information, whereas distant issues are construed abstractly using underlying values. To demonstrate that the application of CLT to political science has significant potential, this research investigates *how perceived psychological distance explains variations in attitude formation related to energy policy.*

This research hypothesizes that, for a proximate issue, individuals will rely on low-

level considerations, such as provided information, whereas for a distant issue, individuals will rely more heavily on underlying values and not be as affected by provided information. While predicting public opinion in the context of U.S. energy policy can be challenging, it also makes for an appropriate context to study how opinions form in the context of CLT. Opinions regarding energy policy, similar to other issues, often reflect political differences[1], politicians emphasize energy as a key policy consideration[2], and particular projects will likely impose costs and benefits to some more than others. The research here examines two U.S. energy development policies in terms of related political attitudes: the Keystone XL pipeline project and ongoing offshore oil drilling projects. These energy projects were chosen both because the costs and benefits are similarly concentrated geographically – falling upon those individuals living in and around either the pipeline or offshore oil platforms – and because they are politically controversial. By limiting the subject pool to residents from states through which the current and proposed pipeline runs, it is possible to compare responses and susceptibility to framing effects based on proximity to the issue.

Using data from experimental survey of over 900 respondents, this study find that a pro-development frame alters opinions for the proximate issue, Keystone XL, but not for the distant energy project, offshore oil drilling. In line with the expectations from CLT, Keystone XL was evaluated in a concrete manner resulting in uptake of the provided information; on the other hand, responses for offshore oil drilling reflected underlying values and not the frame.

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[1] The energy-environment tradeoff continues to reflect sharp political differences with Republicans (71%) more in favor of energy development and Democrats (64%) more in favor of environmental protection (Gallup Polls, April 10, 2013).

[2] In his latest State of the Union Address, President Obama stated: "The all-of-the-above energy strategy I announced a few years ago is working, and today, America is closer to energy independence than we've been in decades" (Obama, January 28, 2014).

This paper proceeds as follows: the first section provides a detailed explanation of Construal Level Theory and situates it within the political science scholarly literature. This is followed by a description of the methods, including the experimental survey design and sampling strategy, the findings and their importance. Finally, several remarks are made in conclusion.

**Psychological Distance and Politics**

The concept of distance is not new to the study of opinions and behaviors; however, it has taken many different forms over time. Social distance, or the distance between different groups in society, has been used to explain stereotypes and prejudice (Wilson, 1996); discounting is commonly used in economics to take into account how something is valued less in the future than at the current time (Trope & Liberman, 2003); and evidence of NIMBYism (Not-In-My-Backyard) has been used to explain opposition to risky technologies proposed near residents (Kraft & Clary, 1991). Additionally, distance is used in political communication. As famously stated by Tip O'Neil, "All politics is local." Politicians engage in framing contests to remind the public of this, as was the case during healthcare reform, with both sides emphasizing how the policy will affect 'you,' 'your neighbor,' and 'your 80 year old grandmother' in an attempt to bring the issue closer to the American public. Thus, the concept is familiar to social scientists – distance plays out in politics and affects our perceptions and behaviors. What Construal Level Theory does is tell us precisely *how* we are influenced by distance.

The Construal Level Theory of psychological distance specifies that the way that an item or event is evaluated or construed depends on *perceived* psychological distance: "Psychological distance is defined as perceived or experienced (rather than actual) distance"

(Ledgerwood, Trope, & Chaiken, 2010, p. 34). According to the theory, any distancing involves construal:

> "Psychologically distant things (objects, events) are those that are not present in the direct experience of reality...Anything that is not present is distal. It may be thought of, constructed, or reconstructed, but it cannot be experienced directly…In relation to psychological distance, these various distance dimensions are anchored on a single starting point (zero distance point), which is my direct experience of the here and now. Anything else -- other times, other places, experiences of other people, and hypothetical alternatives to reality – is a mental construct" (Liberman, Trope, & Stephan, 2007, p. 353).

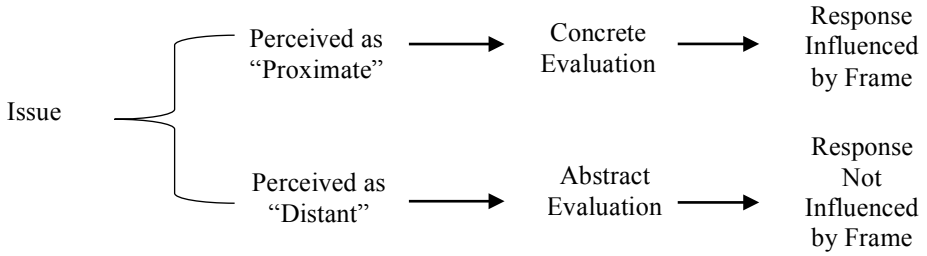
Bringing psychological distance together construal leads to the following relationships. When something is perceived as proximate it is evaluated based on concrete considerations (low-level construal), but when something is distant they represent it in terms of abstract features or general schemas, known as high-level construals[3] (Liberman, Trope, & Stephan, 2007).

The theory has been applied to four domains of psychological distance – temporal, spatial, social and hypothetical (for review see Trope & Liberman, 2003) and is believed to apply to other domains as well (Trope & Liberman, 2010). Although this project focuses on geographic proximity,[4] the approach and conclusions should apply across a spectrum of psychological distance domains.

Figure 1 summarizes the relationship between perceived psychological distance and communication.

[3] This is due to the fact that as individuals move further away from something they have less direct experiences and less information about the item (Liberman, Trope, & Stephan, 2007).
[4] Research specifically looking at the relationship between spatial distance and construal found that subjects were more apt to represent objects based on their abstract features when the location was distant versus close (Fujita et al., 2006).

Figure 1: CLT as a Moderator of Framing Effects




Depending on the issue's perceived proximity (along any of the four dimensions) the individual will either evaluate it based on concrete considerations or abstract features. An issue perceived as proximate or close results in a low-level evaluation, which will be associated with greater reliance on available information, such as the provision of a particular frame, whereas an issue perceived as distant results in a high-level evaluation, which will be associated with less reliance on low-level features and greater reliance on underlying values.

This paper expands on previous literature in two ways: 1) it relates construal level to underlying political values and ideologies, and 2) extends the work to political communication by assessing the persuasiveness of message framing under geographic proximity or distance. There is convincing evidence of the role psychological distance may play as a moderator of attitude formation, change, and choice (as emphasized by Trope & Liberman, 2010; Wakslak, 2012). This work serves to confirm its relevance to political communication, public opinion, and political science more generally.

There are a number of implications for information processing and opinion formation due to construal level. First, when individuals move toward a more abstract evaluation, they omit those features that are incidental or irrelevant, which includes those that may be inconsistent with their chosen schemas (Trope & Liberman, 2010). Second, given this, attitudes and values are more readily used to guide one's choice in the distant condition than

the proximate condition (Liberman, Trope, & Stephan, 2007). Research on consumer behavior found that consumers given abstract representations of a product were likely to choose products that aligned with their values (Goldsmith, Newman, & Dhar, 2013). These conclusions are in line with the work by Mutz and Martin (2001), which argues that individuals tend to accept information that aligns with their opinions and reject or neutralize information that does not. Third, research on CLT finds respondents are more sensitive to the strength of an argument under the distant condition than the proximate condition (Fujita et al., 2008). These implications imply an important relationship between psychological distance and communication: individuals are more likely to be influenced by information about something that is perceived as proximate than information regarding something perceived as distant. With distance comes a greater need to filter out or ignore features that are out of alignment with underlying values or not that persuasive, thus emphasizing construal level's influence on opinion formation.

Studies have found evidence in support of CLT for behavior and attitudes related to public issues including health (Chandran & Menon, 2002), voting behavior (Kim, Rao, & Lee, 2009), recycling (White, McDonnell, & Dahl, 2011; Goldsmith et al., 2011), radon risk perception (Zwickle & Wilson, unpublished data) and climate change (Spence, Poortinga, & Pidgeon, 2012; Haden et al., 2012). Generally, most of the above research has come from a consumer behavior approach or more generally looked at concern relative to psychological distance. Often values and attitudes are measured based on specific attitudes toward the issue,[5] instead of based on more general underlying values or ideologies. Additionally, most of the studies investigating construal level and message framing emphasize the importance of

[5] For example, Zwickle, Wilson, and others specified risk to radon exposure and Spence, Poortinga, and Pidgeon (2012) and Haden et al. 2012 focused on climate change risk.

matching mind set and particular types of messaging. For example, the work by Kim, Rao, and Lee (2009) assessing voting behavior relative to particular types of messages and temporal distance focused on the persuasiveness of messages using abstract, high-level themes when voting is in the distant future, compared to low-level, concrete messages, which were more effective under temporal proximity. Similarly, work by White, McDonnell, and Dahl (2011), assessing recycling behavior, focused on the effectiveness of matching loss frames (as opposed to gain frames) with concrete mind-sets. However, given debate over the relevance of framing effects it is also important to determine when frames matter and when they do not in the context of CLT.

In political communication research, frames and framing effects are substantially noted across issues and context. Priming, framing, and agenda setting alter perceptions of political issues (for a complete review see Scheufele & Tewksbury, 2007). Specifically,

> "to frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described" (Entman, 1993, p. 52).

Research demonstrates that the exact wording of questions can change responses despite retaining the same meaning (Kahneman & Tversky, 1984). This is supported by Nelson et al. (1997) who found that opinions differed based on whether the issue was framed as free speech or a disruption of public order. Since these findings, a number of moderators have been identified, including interpersonal communication (Druckman & Nelson, 2003; Price & Na, 2000), elite competition in the media (Druckman, 2004; Chong & Druckman, 2007), political awareness and knowledge (Slothuus, 2008; Sniderman & Theriault, 1999), predispositions (Alvarez & Brehm, 2000), source credibility (Druckman, 2001), Need to Evaluate (Chong & Druckman, 2010), and online- versus memory-based processing

(Druckman et al., 2010).

Nonetheless, the above findings, as well as others, continue to debate the relevance of framing effects.[6] This research argues that *perceived* psychological distance and subsequently construal level serve to moderate framing effects as well, adding to the discussion about when frames matter and when they do not.

The hypotheses proceed as follows:

*Hypothesis 1a – Issues perceived as proximate will be construed in terms of their concrete, low-level considerations, and thus responses will be susceptible to the provision of relevant information or frames.*
*Hypothesis 1b – Issues perceived as distant will be construed in terms of their abstract, high-level considerations, and thus responses will not be susceptible to frames, instead reflecting underlying values.*

**Research Design**

This research uses energy development technologies to test how Construal Level Theory applies to political opinions and framing effects. Energy policy provides a set of examples that can be used to investigate CLT as a moderator of framing effects. First, the majority of energy consumption in the United States is geographically distant from energy production.[7] The historical and ongoing trend is to distance energy from consumers. Second, there is significant anecdotal evidence[8] and some academic evidence (Greenberg, 2009; Kraft & Clary, 1991; Lisbriel, 1998) that the public thinks about and reacts to energy proposals differently dependent on how close or far away from the project they are. Third, public opinion on energy, similar to other political issues, has proven difficult to predict and

[6] Both Scheufele et al. (2007) and Druckman (2001, 2004) emphasize the need to more about the context and situational factors in explaining evidence for or against framing effects.
[7] see http://energy.gov/maps/2009-energy-consumption-person and http://energy.gov/maps/2009-total-energy-production-state to compare
[8] NIMBYism has largely been used by journalists to denote fevered opposition to the siting of nuclear power, nuclear waste, and hazardous waste.

understand with various explanations ranging from demographics (Firestone & Kempton, 2007), trust in government and industry (Smith & Marquez, 2000), party identification (Jones & Dunlap, 1992), knowledge (Smith, 2002) and risk perception (Carlisle & Smith, 2005) often resulting in conflicting findings. This research attempts to move beyond disagreement, arguing that each of the above predictors depends on *perceived* psychological distance.

Using offshore oil and the Keystone XL pipeline, which both pose local risks and benefits, it is possible to test whether differing psychological distance from the survey respondents, both in terms of spatial distance and salience, affects the means by which the public forms its opinions. Keystone XL serves as the proximate issue and offshore oil drilling serves as the distant issue.

The online survey experiment was conducted during September of 2012 and took respondents approximately 10 minutes. For the purpose of this research, the sampling drew on 943 respondents stratified by the states that cover the current Keystone pipeline (South Dakota, Nebraska, Oklahoma, Kansas, Illinois, Missouri, and North Dakota) and the proposed Keystone XL pipeline expansion project (Texas, Montana, South Dakota, Oklahoma and Nebraska). Because of this stratified design, respondents are evenly distributed across the nine states and no one regional opinion is either overstated or minimized.

The questionnaire (see Appendix) contained 5 question series: (1) social ideology (results from this series are outside of the scope of this paper); (2) political knowledge and ideology; (3) economic stake, media usage, and occupation; (4) a treatment series where half respondents were routed to questions about the Keystone XL pipeline expansion project and half were routed to questions about offshore development; and lastly, (5) all respondents

were asked a series of demographic questions.

The study assessed how proximity influences attitudes toward the Keystone pipeline, which is close to respondents, and offshore oil drilling, which is distant. Given the exposure participants in these states have received on the issue of Keystone XL and the fact that it more directly impacts them (either through production of the expansion pipeline or increased flow to the current pipeline) than the issue of offshore oil, this issue will be perceived as proximate and offshore oil will be perceived as more distant. In addition, prior work suggests that offshore oil is not often perceived as proximate, even for those closest to its operations.[9] To test this, two experimental manipulations were included. Half of the sample was asked about their opinions regarding the issue of Keystone XL and half was asked about the issue of offshore oil. In each group, half the respondents were exposed to a pro-development frame emphasizing jobs, national security, and energy security, and the other half received neutral information about the policies.

*Experimental Treatment Question Battery:*

The survey consisted of a 2x2 design with respondents randomly assigned to one of the four groups:

- *Proximate Pipeline Information Only Treatment* – The current Keystone Pipeline carries Canadian Tar Sands oil from Canada to Illinois and Oklahoma. The Keystone XL is a proposed expansion project that would connect the Keystone to refineries on Texas' gulf coast;
- *Proximate Pipeline Information and Political Justification Treatment* – The current

[9] Smith, Michaud, and Carlisle (2008) found that coastal Californians were no more knowledgeable about offshore oil than their inland counterparts and Santa Barbarians were actually even more supportive of drilling, despite their geographic proximity.

Keystone Pipeline carries Canadian Tar Sands oil from Canada to Illinois and Oklahoma. The Keystone XL is a proposed expansion project that would connect the Keystone to refineries on Texas' gulf coast. Approval of this project is necessary to ensure national security, generate a long term domestic energy source, provide much needed jobs, and reduce the cost of gas;

- *Distant Offshore Oil Information Only Treatment* – The U.S. has a long history of offshore oil drilling dating back to the late 1800's and early 1900's. In 2010 there was a new proposal to open 167 million acres of ocean waters along the Atlantic coastline, the eastern Gulf of Mexico and the north coast of Alaska to oil and natural gas drilling;
- *Distant Offshore Oil Information and Political Justification Treatment* – The U.S. has a long history of offshore oil drilling dating back to the late 1800's and early 1900's. In 2010 there was a new proposal to open 167 million acres of ocean waters along the Atlantic coastline, the eastern Gulf of Mexico and the north coast of Alaska to oil and natural gas drilling. Approval of this project is necessary to ensure national security, generate a long term domestic energy source, provide much needed jobs, and reduce the cost of gas.

The political justification (a pro-development frame) is the same for Keystone XL and offshore oil drilling. Thus, if Construal Level Theory is not operating, we would expect the same uptake of the pro-development frame in the Keystone XL and offshore oil cases. CLT, on the other hand, predicts that the pro-development frame will be more powerful in the Keystone XL proximate case than the offshore oil distant case.

**Analysis and Results**

*Measures:*

The dependent variable is *support for the given energy project* based on a four point scale from strongly oppose to strongly support. The main independent variable is the presence or absence of the *pro-development frame*, with 1 indicating the individual received the treatment and 0 indicating they did not. The analysis also controlled for underlying values based on *party identification* (a seven-point scale from strong Republican to strong Democrat), *age, education level, gender, race, news consumption and Fox News*[10].

*Describing the Data:*

A majority of the respondents are female (61%), most are white (88%), high school graduates (49%), on average 48 years of age, and earning $20,000 - $60,000 per year. In general, they prefer to get their news daily (on average) from local providers (33%), FOX News (18%), or CNN (12%). Approximately 30% are self-identified strong Republicans, 27% strong Democrats, and 43% moderates.

[10] Controlling for reliance on Fox News reflects the fact that Fox News has framed Keystone XL inline with the language used in the treatment.

Figure 2: Difference in framing effect due to psychological distance

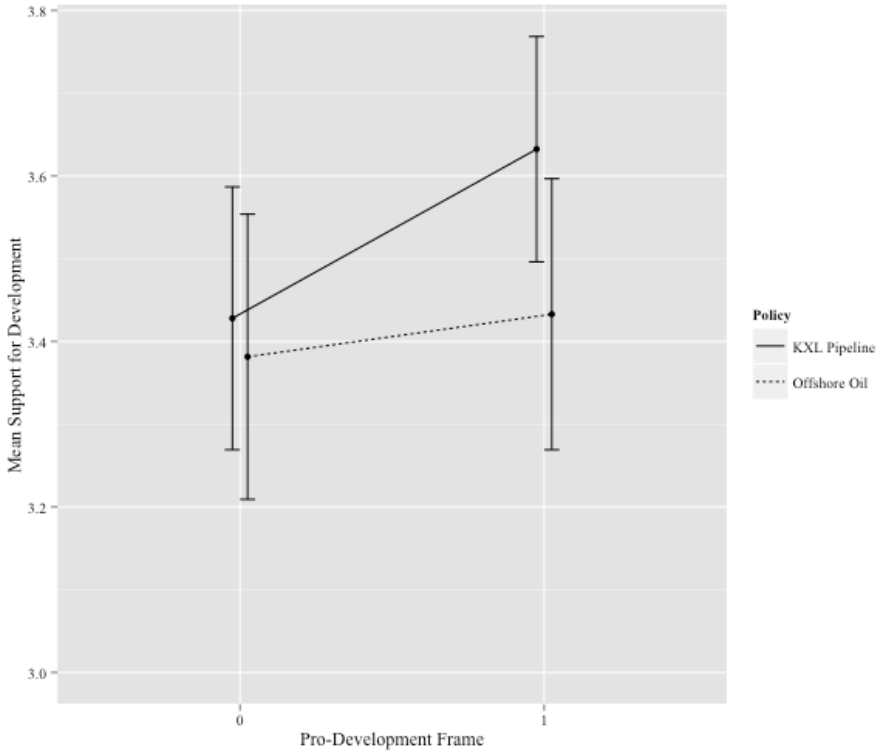



Figure 2 shows the mean level of support for development and 95% confidence bars for each of the four groups. Hypothesis 1a and 1b argue that framing effects will differ due to psychological distance, with opinions based on a proximate issue susceptible to frames and those based on a distant issue not. This figure is in line with the expectations – those given the proximate issue of Keystone XL are much more susceptible to provision of the pro-development frame than those given the distant issue of offshore oil drilling. Given the fact that the wording of the frames was the same in both cases, it is unlikely this is simply due to one being stronger or more persuasive than the other. However, as shown the error bars overlap, suggesting this may not be a significant difference, thus logistic regression is used to control for other independent variables of note to identify the importance of the relationship between distance and support for development.

Because the response variable was ordered categorical, logistic regression was used to estimate the following models.

$$Support_{KeystoneXL} = \alpha + \beta_1 Frame + \beta_2 Party.ID + \mu$$
$$Support_{OffshoreOil} = \alpha + \beta_1 Frame + \beta_2 Party.ID + \mu$$
$$Support_{KeystoneXL} = \alpha + \beta_1 Frame + \beta_2 Party.ID + controls + \mu$$
$$Support_{OffshoreOil} = \alpha + \beta_1 Frame + \beta_2 Party.ID + controls + \mu$$

Table 1: Support For Development Dependent on Proximity, Frame, and Party Identification

| | Proximate – Keystone XL | | Distant – Offshore Oil | |
|---|---|---|---|---|
| Support for Development ~ | Independent Variables | Independent Variables + Controls | Independent Variables | Independent Variables + Controls |
| Frame | 0.4001* (0.18866) | 0.43030* (0.19742) | 0.1242 (0.19550) | 0.18402 (0.203191) |
| Party Identification | -0.2777* (0.04814) | -0.28289* (0.05415) | -0.4592* (0.05258) | -0.40242* (0.057531) |
| Age | | 0.01472* (0.00601) | | 0.02843* (0.006417) |
| White | | -0.44706 (0.36734) | | 0.12600 (0.341125) |
| Male | | -0.04240 (0.19716) | | 0.09499 (0.214705) |
| Education | | -0.20592 (0.14101) | | -0.21136 (0.137213) |
| News Consumption | | -0.13221 (0.07794) | | 0.06912 (0.084205) |
| Fox News | | 0.48810 (0.27498) | | 0.65013* (0.306932) |
| N | 418 | 404 | 394 | 384 |

Significance: * $p < 0.05$, two-tailed; standard deviation shown in parentheses

Table 1 shows a positive and statistically significant effect of the pro-development frame on the level of support in the proximate condition in both models and no effect of the pro-development frame in the distant condition. As predicted by CLT, which emphasizes that only those who perceive an issue as proximate can incorporate concrete information like

frames, respondents are responsive to the frame in the proximate Keystone XL condition, but not in the distant offshore oil condition.

For both conditions, party identification is a reliable predictor of support, with Republicans more supportive of development. In addition, older individuals tend to be more in support of development. For offshore oil drilling, Fox News viewers are more supportive of development, even when controlling for party identification. Interestingly, other control variables, often included in public opinion analysis, were not predictive of responses pertaining to Keystone XL or offshore oil drilling. There are a couple of explanations for this. First, it is possible that on these two issues there are just not important difference due to gender and education. Second, the influence or the frame, party identification, and age may be so significant that they wash out the importance of other control variables.

Because the coefficients in logistic regression do not have an intuitive meaning, the following uses hypothetical individuals to compare the influence of the frame dependent on psychological distance, assess the role of party identification, and investigate differences based on state of residence.

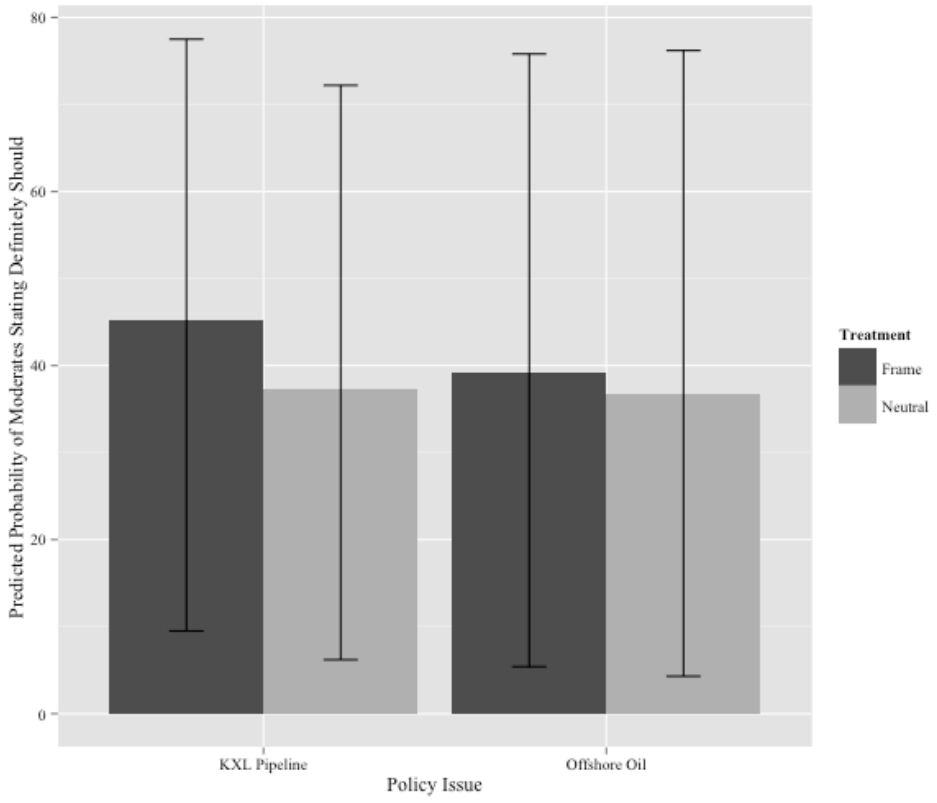
Table 2: Mean differences in predicted probabilities due to distance

| | Proximate – Keystone XL | | | Distant – Offshore Oil | | |
|---|---|---|---|---|---|---|
| | Republican | Moderate | Democrat | Republican | Moderate | Democrat |
| Definitely Should Not | -0.7% | -1.5%* | -3.1%* | -0.2% | -0.6% | -1.5% |
| Probably Should Not | -2.6 | -4%* | -4.9* | -0.8 | -1.6 | -1.2 |
| Probably Should | -4.6 | -2.6 | 1.7 | -1.6 | -0.3 | 1.8 |
| Definitely Should | 7.9* | 8.1* | 6.4* | 2.5 | 2.4 | 0.9 |

Significance: * alpha = 0.05 based on 95% CI did not contain 0

Table 2 shows the mean difference between those who received the frame and those who did not for each categorical response. The difference is calculated for three hypothetical individuals (Republican, moderate, and Democrat) for the proximate issue and the distant issue. Larger values indicate a larger effect of the frame. Positive values indicate that the frame resulted in an increase in that response category. As shown, for the proximate issue of Keystone XL, those who received the frame were much more likely to support development of the pipeline. Republicans experience a 7.9% increase, moderates an 8.1% increase, and Democrats a 6.4% increase. While the frame still had an effect for the distant issue of offshore oil drilling the size of the effect is much smaller and there is not a significant difference between those who received the frame and those who did not. Republicans experience a 2.5% increase in support, moderates experience a 2.4% increase in support, and the increase for Democrats is negligible. Thus, the differences in support due to the frame dramatically increase strong support for development for the proximate issue, again suggesting that proximity results in greater uptake of the frame.

Figure 3: Difference in framing effect due to psychological distance among moderates




This relationship is clarified by Figure 3. The height of the bars corresponds to the probability of moderates responding 'definitely should' approve either Keystone XL or offshore oil drilling with the 95% confidence interval shown for each. On the left of the figure are the responses for the KXL Pipeline group and on the right the responses for the offshore oil group. What is important to note here is the difference in bar heights between those who received the framed message and those who did not for each issue. As shown, the difference between those who received the framed message for Keystone XL and those who did not is much greater than the difference between individuals in the offshore oil group. The above emphasizes the impact of framing effects for proximate issues, but not distant issue.

In addition to the relevance of frame expressed above, CLT also predicts that values are more important for distant issues than proximate issues. The following analysis estimates differences in perceptions based on party identification, controlling for psychological distance and the frame treatment.

Table 3: Mean differences in predicted probabilities due to party identification

| | Proximate – Keystone XL | | Distant – Offshore Oil | |
|---|---|---|---|---|
| | No Frame | Frame | No Frame | Frame |
| Definitely Should Not | 7.3%* | 5%* | 13.3%* | 11.6%* |
| Probably Should Not | 14.7* | 12.3* | 22.1* | 21.0* |
| Probably Should | 6.1 | 11.3 | 5.2 | 9.7 |
| Definitely Should | -28.1* | -28.6* | -40.5* | -42.3* |

Significance: * alpha = 0.05 based on 95% CI did not contain 0

Table 3 shows the mean difference between self identified Republicans and Democrats for each categorical response. The difference is calculated for hypothetical individuals who received the frame and those who did not for the proximate issue and the distant issue. Larger values indicate a larger difference due to party. Positive values indicate greater agreement for that category on the part of the Democrats and negative values indicate greater agreement for that category on the party of Republicans. The size of the difference, rather than the sign is the important difference here. As shown in Table 3 for the responses "definitely should not," "probably should not," and "definitely should," there is nearly a two-fold difference due to party identification for offshore oil drilling compared to Keystone XL regardless of the frame. For example, Democrats are about 28% less likely to respond "definitely should" than Republicans, but there is a 40% difference in the case of offshore oil. What these numbers stress is the importance of party identification in opinion formation

for both issues, but especially so in the case of the distant issue of offshore oil drilling, as would be expected based on CLT.

Figure 4: Difference in response due to party identification

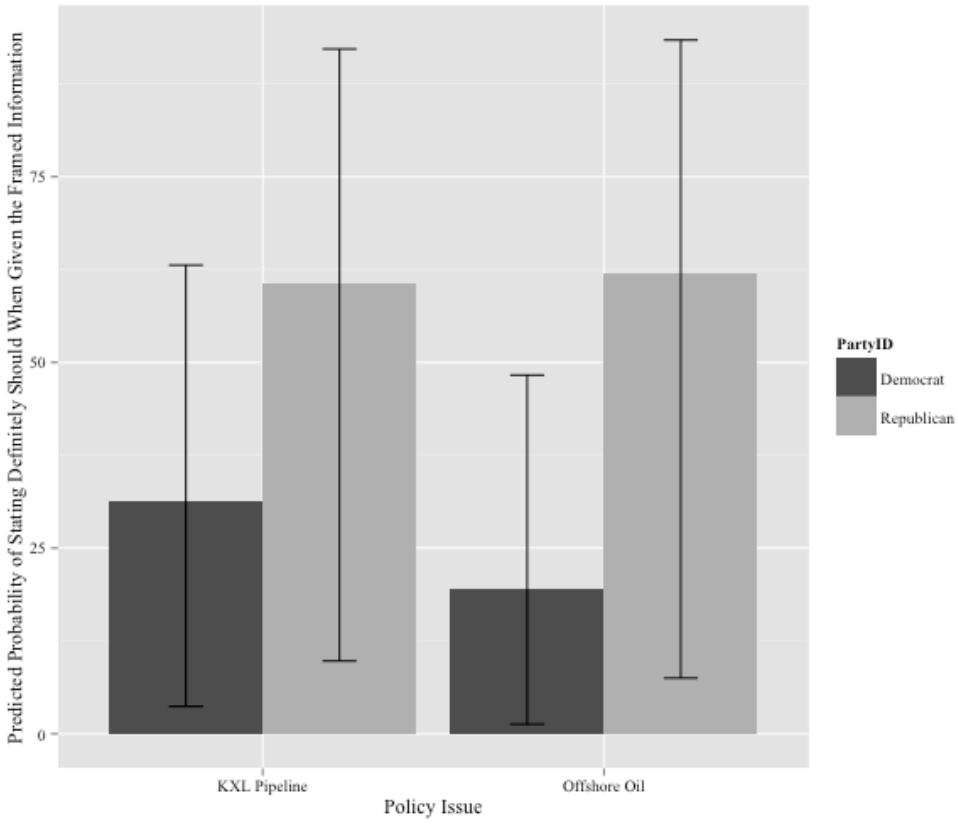



Figure 4 shows the difference in response between each group, both receiving the framed message, due to party identification, with the 95% confidence intervals included. The height of the bars represents the predicted probability of responding 'definitely should' approve in the case of Keystone XL or offshore oil. While it is clear that party identification accounts for clear differences in response for both issues, it accounts for even more difference in the case of offshore oil.

There was some concern that for Texas residents offshore oil drilling would be a proximate issue, given its geographic proximity and economic significance. Therefore, the following looks at how a subject's state of residence affects the results. State was added as a factor to logistic regression analysis, but results did not find any important differences between those from Texas and the other states. Differences in predicted probabilities between those who received the frame and those who did not were calculated for each state in order to expand on the results from logistic regression. The focus in Table 4 is on the theoretical possibility that Texas views offshore oil as proximate, which would increase relevance of the frame.

Table 4: Mean differences in predicted probabilities by state for offshore oil drilling

| | Definitely Should Not | Probably Should Not | Probably Should | Definitely Should |
|---|---|---|---|---|
| Texas | -0.3% | -1.1% | -0.9% | 2.4% |
| Montana | -1.3 | -1.7 | 1.4 | 1.6 |
| North Dakota | -0.6 | -1.6 | -0.2 | 2.4 |
| South Dakota | -0.6 | -1.7 | -0.1 | 2.4 |
| Missouri | -0.4 | -1.4 | -0.6 | 2.4 |
| Nebraska | -0.6 | -1.6 | -0.3 | 2.5 |
| Oklahoma | -0.5 | -1.4 | -0.5 | 2.4 |
| Kansas | -0.5 | -1.6 | -0.2 | 2.3 |
| Illinois | -0.8 | -1.8 | 0.3 | 2.2 |

Differences in predicted probabilities due to the frame are shown for Texas at the top of the table. Response categories are indicated horizontally across the top of the table. Residents from Texas experience a 2.4% increase in strong support for offshore oil drilling due to the frame. A similar boost occurs for residents from North Dakota, South Dakota, Missouri, Nebraska, Oklahoma, and Kansas. Thus, the frame matters no more for Texans than respondents who live further away from offshore oil drilling. Based on the logistic

regression results and differences in predicted probabilities it is possible that offshore oil drilling is a distant issue for respondents from Texas, despite geographic proximity.[11]

**Discussion and Conclusion**

This research relies on the Construal Level Theory of psychological distance to account for variation in attitudes towards two controversial energy policies. Taken together, the results of this study support expectations based on the Construal Level Theory of psychological distance. According to CLT, when something is perceived as proximate it is evaluated based on concrete, low-level features. On the other hand, when something is perceived as distant is it evaluated based on abstract, high-level features, often in line with values. In this study, distance was manipulated by selecting two issues that vary in their distance to respondents: Keystone XL and offshore oil drilling. Respondents from the current Keystone pipeline route and the proposed Keystone XL route were given either a persuasive pro-development frame or simple information. The pro-development frame significantly affected responses only in the case of the proximate issue. This suggests that proximity resulted in a greater reliance and uptake of the frame provided in the survey question. Although the language of the frame was the same for offshore oil drilling, respondents who were asked about their attitudes on this distant issue did not exhibit similar effects, instead relying more on their party identification.

The Construal Level Theory of psychological distance can tell us something about *how* individuals form their opinions on various political issues. The theory posits that items,

[11] There are two potential explanations here. First, Texas especially is a very large state and there is no guarantee that the respondents live anywhere near offshore drilling activity, so the issue may not be proximate for those selected. Second, perhaps even if the issue were geographically proximate for Texans, this does not guarantee that offshore drilling is related to psychological distance in the same way as other issues. The risks and benefits may be so concentrated that for most of the American public offshore oil is not a proximate issue, at least not due to geographic proximity.

events, or issues are evaluated or construed differently based on psychological distance. Thus, the thought process behind a proximate issue differs than that behind a distant issue. The theory, applied to political science helps to shed light on political attitudes, including a contribution to our understanding about when frames are more likely to matter and when they are not. This study was a first step at integrating this theory into political science research by evaluating how opinion formation differs due to geographic proximity. Through the case of energy policy, this paper 1) introduces a new moderator (psychological distance) that may explain different findings in the literature pertaining to framing effects and public opinion; and 2) draws a connection between political values and CLT, with party identification especially important for opinions on psychologically distant issues. Construal Level Theory helps us see something we did no know before; a geographic proximate triggering a reliance on concrete features and uptake of the frame and the distant issue construed based on its abstract features.

Future work should examine the applicability of psychological distance across a number of different issue domains. This will help with the development of reliable measures of psychological distance. In addition, this work manipulated distance based on sample and issue selection; however, there are a number of additional ways to manipulate distance that may help to control for other factors. It will be important to look at opinion formation under alternative manipulations and with various frame provisions in subsequent studies.

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## TWO: Political Communication across Space

### Introduction

Society does not experience politics and public policy in a uniform fashion. At a minimum, clear differences exist based on race, gender, and socioeconomic status. In addition, one's distance from a policy issue or process alters that experience. For example, if we reflect on the 2016 Presidential race now, our conclusions will most likely be quite different from those made days before the election; with the election a long time out we develop general perceptions of the candidates and where they stand, but as the election draws closer we may start to consider whether we registered, where we need to go to vote, and the specifics of each proposition and candidate.

According to the Construal Level Theory of psychological distance from social psychology, individuals think about issues differently depending on the perceived distance from that issue. Great distance is associated with a greater reliance on the high-level (broad categorization), abstract features of the issue, and proximity is associated with a greater reliance on the low-level (narrow confines), concrete characteristics of the issue (Trope & Liberman, 2010). Moreover, messages that match mindset (construal) and location are more persuasive than those which do not (Kim, Rao, & Lee, 2009). This cognitive process ultimately affects opinions and behaviors, and therefore should be of interest to political science, and yet there is very little reliance on the theory outside social psychology.

Construal Level Theory may be especially useful in understanding geographic variation in public opinion and political communication. Building on prior work demonstrating the relationship between geographic distance and environmental public opinion, this research asks, what accounts for variation in political communication across

space? Political elites and groups rely on political communication to draw attention to issues, sway public opinion, and mobilize support. Their communication efforts present real implications for local, state, and federal policy issues and yet why and how communications may vary based on the distance between the issue and the recipient of the issue is poorly understood.

In order to investigate the relationship between geographic distance and political communication, hundreds of thousands of Twitter messages pertaining to Keystone XL from January, 2010 through March, 2015 were analyzed. Twitter presents an appropriate context to test construal level theory in a real world setting, both theoretically and empirically. First, tweets are public communications and all are available via Twitter's fire hose. Thus, it is possible to access the entire population of Twitter users and tweets. Second, the public is playing an ever-increasing role in the political communication sphere, but we are only beginning to appreciate to what extent. The debate over the Keystone XL pipeline was chosen given its localized versus national costs and benefits that clearly differ by proximity to the pipeline.

Volume and content of tweets are compared between states along the pipeline route and those outside the route. Three primary hypotheses are explored. First, as the issue directly affects those living closer to the pipeline more than others it should be more salient and talked about more by those individuals. Second, with proximity come specific details of the issue that may be ignored by those further away who would instead be more interested in national repercussions. Thus, the residents of the states closest to the pipeline will rely on low-level frames and features in their tweet construction, whereas those living further away will turn to high-level frames and features when composing a message. Third, concrete

communications and frames should appeal more to those living closer to the proposed pipeline whereas abstract communications and frames should appeal more to those living further away. Tweets matching mindset to location will be more persuasive and more likely to be re-tweeted than those that that do not.

The results suggest that the public does vary geographically in its online discussion of Keystone XL, but not always in the ways the theory would predict. While individuals living along the pipeline route are talking about it more on Twitter, their own messages are neither more nor less concrete than those living further away. However, they do appear to pick up on differences in messages received: individuals were more persuaded by, and more likely to re-tweet, messages that matched mindset and location than those that did not.

The following begins with a theoretical argument for the relationship between politics and distance in the context of political communication, followed by case selection, data and analysis, results, discussion, and the conclusion.

**Theorizing Political Communication across Space**

Politics and political processes vary spatially. The blue, red, and purple patchwork of state voting preference is a clear representation of this fact. The cultures, ideologies, industries, racial compositions, and histories found on the west coast versus the east coast, versus the grain belt, demonstrate significant political differences and opinions regarding this nation's policy issues. Recent decisions over same-sex marriage and the legalization of marijuana point to an American public divided geographically.

As much as we have come to understand many of the sources of political values, behaviors, and communication, we have largely failed to provide a general theory for how geographic distance from policy issues affects these political processes and outcomes. The

Construal Level Theory (CLT) of Psychological Distance from social psychology specifies how items, events, or issues are construed based on proximity, either in space, time, social, or hypothetical (Trope & Liberman, 2010). Political scientists and others investigating political processes have only recently applied the theory outside the confines of psychology and consumer behavior, but its potential is clear. The theory has so far helped predict propensity to vote as an election nears (Kim, Rao, & Lee, 2009), attitudes toward agricultural practices to mitigate climate change (Van R Haden, Niles, Lubell, Perlman, & Jackson, 2012), and how distance influences perceptions of climate change more generally (Spence, Poortinga, & Pidgeon, 2011). At the very crux of CLT is the notion that distance influences how you think about something, in turn the choices you will make, and as I argue, how you will communicate about that something.

Distance has not been completely ignored by political science. It is referenced in network and policy analysis, economics, and explanations for local opposition to unwanted/risky technologies. For example, the Advocacy Coalition Framework, developed in large part by Sabatier and Jenkins-Smith (1993), places coalitions or networks at the core of understanding the policy process. The distance between stakeholders accounts for opportunities to overcome collective action problems, generate consensus, partake in the policy process, and break subsystem monopolies and equilibrium (see Jones & Jenkins-Smith, 2009; Weible, Sabatier, & McQueen, 2009). Within this framework, Munro (1993) identified clear geographically driven preferences in the case of California water policy, but this work is an exception to the majority of ACF work and still does not offer an explanation for its importance.

Self-interest, stemming from geographic proximity, is often used to explain local support for development. Industry in the U.S. is, for the most part, determined by geography. Ports and shipping are confined to large protected harbors, agriculture and farming is limited by productive soil, water, and space, loggers must live where trees grow over wide swaths of land, fishing boats occupy the most productive sections of the ocean, and minerals and fossil fuels are extracted according to particular geological make-ups. Those closest to these operations, who have the most to gain financially, tend to favor policies that promote these industries, regardless of the health and environmental costs that come with economic production (Freudenburg, Wilson & O'Leary, 1998). These pro-development sentiments are so predictable that industries often lobby particular states based on less stringent regulations (Davis, 2012; Davis & Hoffer, 2012; Rabe & Borick, 2013). Thus, due to economic self-interest the local public will tend to favor pro-development policies and oppose those policies set to limit or reduce economic activity.

In a similar vein, geographically proximate self-interest can also be used to account for NIMBYism ("Not-In-My-Backyard"), or local opposition to the risks posed by such economic development (Kraft & Clary, 1991 pg. 300; Maxmanian & Morell, 1990, pg. 300). However, additional work suggests that perceptions of geographic implications may vary (Kraft & Clary, 1991) or be relatively non-existent (Smith, Michaud, & Carlisle, 2008). In addition, a number of studies point to cultural values (Vittes et al., 1993), attitudes about equity (Lober & Green, 1994), features of the information environment (see Schaffer Boudet, 2011; Balžekienė, 2002) and distrust of the opposition (Smith & Marquez, 2000) as explanatory to public support and opposition. Thus, while most scholars would likely agree that perceived proximity can matter, they cannot necessarily anticipate when or how. It is

clear from this that simplified models of public opinion based on geographic proximity and self-interest fail to account for the diversity of opinions on energy issues. They do not tell us why we can expect one reaction over the other, the type of relationship that exists between distance and opinions, or what accounts for such differences.

The Construal Level Theory of Psychological Distance (Trope & Liberman, 2010) offers a theoretical foundation for the relationship between distance and cognition. In a broader context it can be used to relate distance to political outcomes. The theory consists of two components: psychological distance and construal. "Psychologically distant things (objects, events) are those that are not present in the direct experience of reality" (Liberman, Trope & Stephan, 2007, pg. 353). Zero distance is the "direct experience of the here and now," therefore, as distance increases the more the experience is a "mental construct" (Liberman, Trope & Stephan, 2007, pg. 253). Subsequently, distance is a continuum from close proximity to great distance. The second component is construal level, the cognitive component of the theory, which allows individuals to change their mental horizon depending on psychological distance (Trope & Liberman, 2010). Construal is often distinguished between abstract or concrete considerations. Notions of 'why,' primary features of the issue, and general classes tend to associate with distancing where as 'how' consideration, secondary characteristics, and specific cases are associated with proximity (Kim et al., 2009; Trope, Liberman, & Wakslak, 2007; Fujita, Eyal, Chaiken, & Trope, 2008). Construal explains how items, events, or issues are evaluated due to distance.

According to the theory, something that is close or proximate is construed based on its concrete, low-level features whereas something perceived as distant is evaluated based on its abstract, high-level exemplars (Trope & Liberman, 2010). Thus, distance is associated

with a change in mental evaluation. To give you an example, consider the recent earthquake in Nepal. For most of us this event is geographically distant. As such we may think of the issue in terms of why it happened, how the governmental system there affects the recovery process, the lives lost. Alternatively, for those geographically proximate to the disaster, details likely come to mind – how will they rebuild, what happened in nearby communities, where can they seek shelter? The first is largely composed of more abstract, high-level features of the earthquake, the second composed of concrete, low-level characteristics. In both cases the issue is the same, and yet the evaluation is different due to geographic distance.

There are at least four dimensions of psychological distance – temporal distance, spatial distance, social distance, and hypothetical distance (Liberman, Trope & Stephan, 2007). These dimensions tend to correlate with one another (Trope & Liberman, 2010). If something is perceived as close geographically it is also likely perceived as close in time, close socially, and non-hypothetical, visa-versa. Again, the anchoring point is the here and now, anything further away is construed based on abstract, high-level exemplars. Because it is not directly experienced, the details are either missing or not relevant.

This research integrates CLT into political science via salience and in particular how it pertains to political communication. In general, something that is salient is more relevant, accessible (Tversky & Kahneman, 1973; Kahneman & Tversky, 1982), and allows individuals to draw on particular information about it to make judgments (Zaller 1992, pg. 32). Although there are many implications for salience in political behavior (see Krosnick, 1988; Page & Shapiro, 1983; Burstein, 2003; Monroe, 1998; Gromley, 1986; Mayhew, 1974; Fenno, 1978), this particular piece focuses on salience in political communication.

Construal Level Theory tells us not only when we can expect increased salience, but more over, what salience means for public opinion and political communication. Thus far, most of the work on CLT focuses on attitude or behavioral outcomes within the confines of a controlled setting. Furthermore, there are only a handful of studies that apply CLT to political issues or settings. Building on prior work demonstrating an important interaction between geographic distance and public opinion (Hodges & Collins, in review), this research examines the applicability of CLT to mass communication across space. As CLT tells us how people think about, form opinions on, and make decisions regarding various issues dependent on distance. It also lends expectations for how they would communicate about such issues. Clearly Californians talk about drought differently than Oregonians and residents of the recently tornado impacted states discuss the natural disaster in an alternative way than you and I.

This research asks, what accounts for the variation in political communication as the communicator and the object of his or her attention vary across space? There are a number of implications for understanding how political communication varies based on geographic distance. First, from a theoretical perspective, beyond just knowing how much the public may talk about something, we need to know what attributes they rely on to discuss the issue and why. Second, political communication has major implications for policy outcomes, given its role in framing issues and mobilizing the public. Third, due to the shifting landscape of political communication since the rise of social media, the public now, more than ever, directly participates in this process.

There are a number of expectations regarding political communication and geographic distance. Prior work in political science with the inclusion of CLT from social

psychology illuminates both how the volume of discussion might vary across space, as well as how the type of discussion is influenced by geographic proximity.

The public tends to think about and discuss policy issues that have personal relevance more than those that do not. Moreover, the media and, more recently, alternative news sources help determine what the public thinks about by making some policy issues more salient, or accessible, than others. In particular, when relevance and uncertainty are high, the public is more apt to turn to and be influenced by media stories (Weaver, 1977, 1997). Those issues most relevant are most salient and most on the minds of the public. Applying salience to geographic distance leads me to the first hypothesis:

*Hypothesis 1 – Those living in proximity to an issue will communicate more about it than those living further away.*

Moreover, it is not just what the public thinks about that is influenced by distance, but it is also how they think about it, otherwise known as framing. Construal Level Theory suggests that particular attributes or constructs of an issue will be more prominent than others, depending on geographic proximity. Frames serve to define problems, diagnose causes, make moral judgments, and suggest remedies (Entman, 1993). And, in turn, frames can influence decisions citizens make about policies by making some considerations seem more important than others (Kahneman & Tversky, 1983; Nelson, Clawson, & Oxley, 1997; Slothuus, 2008). The public participates in the framing process to make sense of the world. Those attributes of an issue that are closer psychologically are more important in an assessment (Ghanem, 1997). According to CLT, these 'attributes' depend on distance.

Because high-level exemplars supersede their low-level counterparts, considerations are hierarchical (Trope & Liberman, 2010). A book, for example, can be most abstractly seen

as bound paper, which all books are, or more concretely seen as a murder-mystery. A murder mystery is a book, but not all books are murder mysteries. An issue can be defined by a multitude of frames, some of which are more relevant at a distance and others more relevant with proximity—the former tending to be more abstract or general and the latter more concrete or specific. These considerations lead me to the next set of hypotheses.

*Hypothesis 2a – those living in proximity to an issue will utilize more low-level frames in their communications than those living farther away.*

*Hypothesis 2b – those living farther away from the issue will utilize more high-level frames in their communications than those living more proximately.*

*Hypothesis 2c – those living in proximity to an issue will utilize more low-level frames than high-level frames in their communications.*

*Hypothesis 2d – those living further away from the issue will utilize more high-level frames than low-level frames in their communications.*

Construal Level Theory specifies that distance is associated with abstraction. Just as one's thought process and the frames utilized differ due to distance, so should the concreteness or abstractness of communications. Communications about more distant events or issues should be more abstract linguistically than those about more proximate issues (Coenen, Hedebouw & Semin, 2006).[12]

*Hypothesis 3a – Communications from those living in proximity to an issue will be more concrete in composition than from those living further away.*

[12] Stephen, Trope and Liberman (2010), Shapira, Liberman, Trope and Rim (2012), Clark and Semin (2008), and others rely on the Linguistic Category Model (LCM) as an appropriate tool to measure construal.

*Hypothesis 3b – Communications from those living further away from an issue will be more abstract in composition than from those living further away.*

*Hypothesis 3d – Communications from those living in proximity to an issue will be more concrete than abstract in composition.*

*Hypothesis 3c – Communications from those living further away from an issue will be more abstract than concrete in composition.*

Scholars often differentiate between the 'why' and 'how' considerations behind an event or issue (Kim et al., 2009). With proximity, individuals rely on low-level construals, which tend to highlight the subordinate 'how' aspects of an item, event, or issue. Alternatively, with distance, individuals rely on high-level construals, which highlight the superordinate 'why' features of an item, event, or issue (Kim et al., 2009). As such, the importance of 'why' increases with distance and a reliance on 'how' increases with proximity (Liberman & Trope, 1998). In addition, 'why' versus 'how' is goal driven, pointing to reasons for action with 'why' more persuasive at a distance and 'how' more persuasive with proximity (Kim et al., 2009). When a news report reads 'Obama pulls out his veto pen to block Keystone XL' we get the 'how,' but not the 'why.' The 'why' would include a description as to what influenced his choice. The next hypotheses proceed as follows.

*Hypothesis 4a – those living in proximity to an issue will construct their communications based on 'how' more than those living further away.*

*Hypothesis 4b – those living further away from an issue will construct their communications based on 'why' more than those living in proximity to an issue.*

*Hypothesis 4c – those living in proximity to an issue will rely more on 'how' references than 'why'.*

*Hypothesis 4d – those living further away from an issue will rely more on 'why' references than 'how'.*

Because features of an issue are more or less relevant, salient, and applicable based on distance, they vary in persuasiveness. Communications that match the level of construal and distance lead to differing levels of favorability. For someone who perceives an issue as proximate, they are more persuaded by low-level, concrete features of the issue. In contrast, for someone who perceives an issue as distant, they are more persuaded by high-level, abstract features. Messages using those elements most in line with an individuals' perception are more persuasive or convincing (Kim et al., 2009). Matching natural mental representations increases the extent to which a statement resonates with an individual. Therefore, according to the final hypotheses:

*Hypothesis 5a – individuals living in proximity to the issue, as opposed to those living further away, will find low-level messages to be more persuasive.*

*Hypothesis 5b – individuals living more distant from the issue, as opposed to those living closer, will find high-level messages to be more persuasive.*

*Hypothesis 5c – those living in proximity to an issue are more persuaded by low-level messages than high-level messages.*

*Hypothesis 5d – those living further away are more persuaded by high-level messages than low-level messages.*

**Case Selection**

There are two commonly used ways to deduce perceived psychological distance and construal. The first is to assess it through a survey instrument, the second is to manipulate it with an experiment. This work instead relies on a policy issue with geographically differentiated consequences as a proxy for distance. Not all issues obviously present geographic considerations. National health care, education, and economic reforms do not typically vary in their application based on geography. However, energy extraction and production are literally confined to particular locations. As such, local communities experience both the risks and direct economic benefits of energy policies and projects. Their experiences with energy are unique and fundamentally different than those living elsewhere.

In 2005 the Keystone pipeline project was proposed by TransCanada Corporation and the first leg of the pipeline, running from Alberta, Canada to Illinois, became operational in June 2008. Soon after, the Keystone XL extension pipeline was proposed to transport tar sands oil from Alberta through Montana, over the Ogallala Aquifer, to refineries in Oklahoma and Texas. While most assumed a quick approval, the debate over this extension has yet to be settled. This delay comes as a result of significant differences in public support, national and local protests, outspoken political elites opposed to the route, and disagreement over the pipeline's potential economic and environmental impacts.

Keystone XL presents varying benefits for those living within and outside the affected states. Those within receive employment opportunities and state tax revenue,[13] while the rest of the country benefits from a possible reduction in gas prices and a lesser reliance on

[13] Estimates regarding direct economic benefits vary by source, but a commonly used estimation cites an immediate benefit to the country of $20 billion to the US economy and $5 billion to the states along the route (Parformak et al., 2013).

foreign oil. Locally, the viscous oil poses threats to land and water,[14] and some will lose property via eminent domain. Globally, tar sands production increases human induced climate change. Given these stark differences as well as others, Keystone XL is an appropriate case to consider how communication differs based on distance from the pipeline.

There are two primary reasons that make Twitter users especially relevant to this research. First, unlike other social media sites, tweets are public and readily accessed in their entirety through Twitter's fire hose. Thus it is possible to evaluate the entire population of Twitter users without relying on a sampling scheme or mental recall.

Second, social media users make up a growing and potentially politically important segment of the American public. As of 2014, social media use presents a significant component of Internet use. It is estimated that of Internet using adults, 71% use Facebook and 23% use Twitter (up from 16% two years prior) (Duggan et al., January 9, 2015). These are 'highly individualized publics' (Bennett & Segerberg, 2013, pg. I) who are not inclined to join formal groups. Nearly 66% of social media users, or 39% of American adults participate civically or politically through social media (Rainie et al., 2012). Those who use Twitter to talk about or get information on politics are known to have firmer partisan and ideological ties and between 20-30% of them belong to groups advocating political or social issues, follow political elites, and encourage others to take action politically (Rainie et al., 2012). And perhaps most importantly, 43% of social media users choose to learn more about an issue due to something seen on social media and 18% go as far as to take action (Smith, 2014). Although Twitter opinion is not always a microcosm of public opinion (Smith, 2014), it represents an important segment of the American public worthy of attention.

[14] 'DilBit,' the primary component of tar sands oil is argued to present greater environmental concern than other crude oil products (Stansbury, 2011).

**Data, Analysis, and Results**

To test these hypotheses, I collected all public[15] tweets referencing the Keystone XL pipeline from January, 2010 through March, 2015 which have location data at the state and city level[16] as well as a small number of geotagged tweets.[17] Tweets were collected using software from Crimson Hexagon's (CH) ForSight™ platform.[18] The software has access to the Twitter 'firehose,' comprised of all public tweets and allows users to perform boolean searches. After multiple iterations[19] the most effective boolean search string for tweets about the Keystone XL pipeline was:

((keystone AND (pipeline OR oil)) OR KeystoneXL OR kxl OR nokxl)

This search string appeared to return the most expansive set of results for both anti- and pro-Keystone XL tweets, while excluding tweets not directly related to the issue.

From January, 2010 to March, 2015, there were just over 3.5 million tweets related to Keystone XL coming from the public.[20] The start of the time period comes before any

[15] Tweets coming from prominent interest groups, elites, and media were removed from the Boolean search in order to capture a truly 'public' discussion of the topic.
[16] Crimson Hexagon relies on user profiles' location field, as well as users' time zones and languages to determine a user's location. They estimate that they are able to match approximately 70% of all posts to a specific state or province within that country and about 50% of all posts to a city or urban area within that state. For more information on this methodology refer to https://crimsonhexagon.zendesk.com/hc/en-us/articles/203952525-Geography-methodology-finding-inferring-the-location-of-posts.
[17] Only 1% of tweets are tagged with their precise coordinates when they are posted from a mobile phone with location services turned on.
[18] The Crimson Hexagon ForSight™ platform is patented technology developed at Harvard University's Institute for Quantitative Social Science (see www.crimsonhexagon.com for more information about the software).
[19] Initially a simple search string was used, however, this resulted in the uptake of tweets pertaining to Keystone RV's, the beer, ski resort, and town. Subsequently, 'Keystone' was only included as a search term with the provision of 'oil' or 'pipeline.'
[20] Through Twitter and Google, prominent pro- and anti- Keystone XL groups were identified, along with major media outlets, and subsequently removed from the tweet

significant discussion of Keystone XL on Twitter (up until June, 2010 no more than 50 tweets occurred per day).

In order to evaluate the first hypothesis, that Keystone XL is more salient and therefore discussed more in the proximate states than the distant states, volume per capita was collected for all of the continental states. R's maps package, geom_map feature within ggplot, and shapefiles provided by mapcruzin.com, were used to spatially analyze Twitter volume in the U.S. from January, 2010 through March, 2015. Welch t-test in the R pscy package was used to statistically test the differences between proximate and distant states. In addition, major cities and metropolitan areas were compared via the same process. Montana, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Texas, Missouri, and Illinois make up the proximate states. North Dakota, Missouri, and Illinois are all along the current Keystone route, the other six states are along the proposed XL route. All other states are considered distant with Alaska and Hawaii removed from the mapping analysis. Figure 1 shows per capita posts by state.

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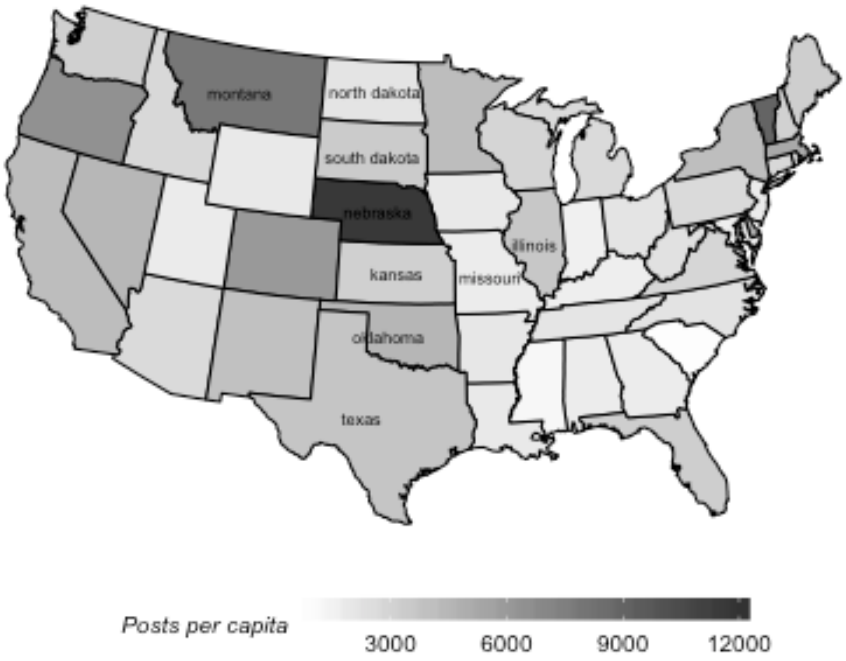
collection to ensure that the vast majority of tweets analyzed are truly coming from the general public.

Figure 1: Posts per capita by state

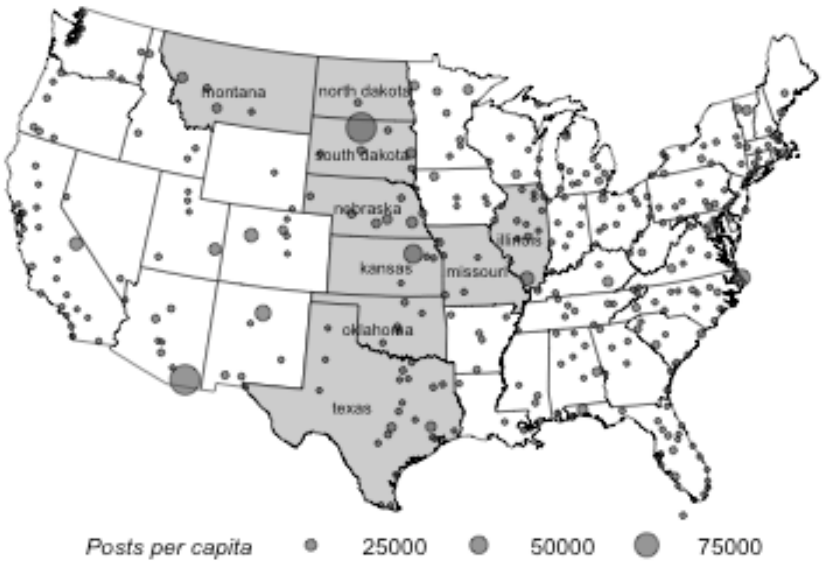



Due to considerable media attention and protest in Washington D.C. the capital was removed from analysis as to not skew the interpretation of volume in other states.

Figure 1 shows per capita posts by state. In the figure, those states having higher per capita activity are filled with dark grey, with those having lower activity white or light grey. Nebraska accounts for the majority of per capita discussion on Twitter. The map demonstrates stark geographic variation in discussion, with a significant amount of activity occurring within the proximate states as well as coastal regions. A comparison of proximate states to distant states reveals that the average per capita volume per state is greater in the affected states than those outside this region; however, this difference is not statistically significant at 95% .The average per capita volume is 5,252 posts within the proximate states and 3,039 posts outside those states (Welch Two Sample t-test, t=1.7012, df=6.479, p-value=0.1366).

To expand on the above results, per capita tweet volume was also compared for major metropolitan areas (see Figure 2).

Figure 2: Posts per capita by metropolitan area




Washington D.C. was not included, as it accounted for well over 120,000 tweets and therefore diminished any visible differences between the other cities and states.

The proximate states are shaded in grey to ease interpretation. The size of the circle corresponds to the volume of posts per capita in major metropolitan areas. A significant number of posts come from cities and metropolitan areas within the affected states. Within the proximate cities, the average per capita tweet volume is 9,157.98. In the cities outside the Keystone XL route, the average is 5,279.97 tweets per capita. A Welch Two Sample t-test reveals that these differences are not statistically significant at 0.05 ($t=1.7295$, $df=55.04$, p-value=0.08933). Contrary to the expectations from CLT, tweet volume is not significantly larger within the proximate states than distant states at 95% confidence. Consequently, hypothesis 1 is rejected.

To explore the relationship between construal level and distance, a subsection of distant states were selected to compare to those along the pipeline route. California and New

York were selected as distant for a couple reasons. First, I wanted to ensure that they were not geographically proximate to the pipeline. Secondly, these states allow me to control for baseline salience and vary geographic proximity. More than other states outside of the affected states, California and New York had rather high volumes of discussion around Keystone XL. They clearly care about the issue and are talking about it, but they are not experiencing it in the same way as those living close to the proposed pipeline. The distant states accounted for 436,006 twitter posts, on average 4.1 posts per thousand, and the proximate states accounted for 326,031 posts, or on average 5.2 posts per thousand.

Hypothesis 2 explores the relationship between distance and concrete versus abstract frame use. Crimson Hexigon's software includes supervised machine learning, which was derived from the ReadMe tool. A small sample of tweets were categorized manually based on their predominant frame. The software then uses this to isolate particular, relevant phrases using a 'bag of words' technique throughout the population of posts and then categorizes then accordingly (Hopkins & King, 2010). Based on a review of tweets regarding Keystone XL as well as prior literature and news relate to the topic, fourteen categories were identified to separate tweets. As a first step, tweets were categorized into 11 frame categories (see Table 1) and 3 un-framed categories ('general pro,' 'general anti,' or 'information/reports') that captured the vast majority of discussion.

Table 1: Tweet Frame Categories

| Category | Tweet |
|---|---|
| Jobs and Local Economy | Oil indust makes econ pitch for Keystone XL via @fuelfixblog #energy #jobs #oil |
| Energy Policy and National Security | If Egyptian violence shuts down the Suez Canal, expect astronomical fuel prices that the Keystone Pipeline could've averted |
| Political Pressure | @TheKronies @MarkUdall Tell Udall to support the Keystone Pipeline! People in his own state don't agree with him |
| Overall Disgust | RT @noobamanoway #VA = #Obamacare = Socialist medicine at it's worst. Had enough of the treason? #VACoverUp #FnF #Benghazi #Keystone XL #Obamacare #AP #Etc |
| Anti- Corporations and Elites | Keystone XL Amounts To America's Pipeline Vs. President Obama's Cronies |
| Direct Political Action | Only 9 more people needed to hit our goal of 500 helping DC say #NoKXL on Thunderclap. Will you be number 500? |
| Spills, Safety, Environment | #Texas oil spill 12 miles long…blocks ships #nokxl would increase shipping Gulf |
| Climate Change | RT @sierraclub Why Keystone XL flunks the #climate test: (the latest from @bruneski) #NoKXL |
| Lack of Economic Benefits | RT @KXLBlockade Permanent #jobs created by Keystone XL will be less than a single Applebees. #nokxl |
| Protest Reports | Activists March in Opposition of Keystone XL Pipeline, Climate Change |
| Threats to Tribal Lands | No Tar Sands / No Keystone XL Pipeline / No Trespassing on Lakota Nation treaty lands |

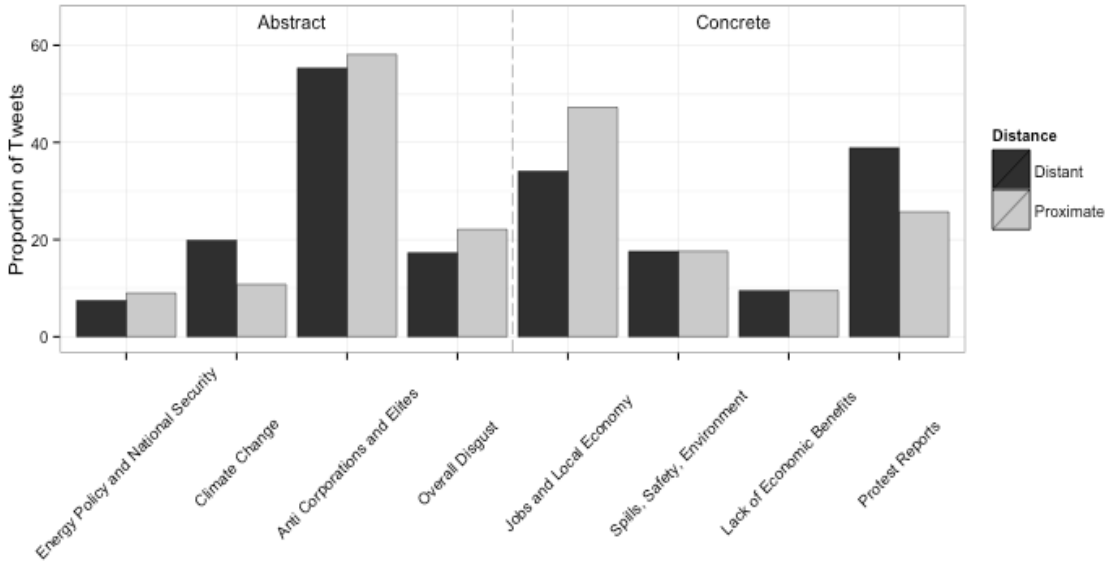
Some of the categories are not obvious in terms of why you would expect greater reliance in some states as opposed to others. For example, within the threats to tribal lands category, some tweets may focus more on tribal protests, while others point to the historical discrimination against Native Americans. This nuanced difference is not detected by CH software and would require its own sophisticated analysis. Similarly, political pressure or calls for direct political action may be targeted more at local authorities in some cases, but reference Washington D.C. in others. Again, without additional computer assisted learning and training focused specifically on this frame category, I am unable to systematically pick up on these slight differences.

From the eleven frame categories, eight with more obvious relationships to proximate and distant states were selected. Abstract frames include 'energy policy and national

security', 'climate change', 'anti corporations and elites', and 'overall disgust.' Concrete frames include 'jobs and local economy', 'spills, safety, environment', 'lack of economic benefits', and 'protest reports.' As you can see, the concrete frames are low-level considerations of more abstract ideas. The prevalence or lack of jobs and local economic opportunities are subordinate to energy policy, protest is often focused on very specific concerns or wrongdoings, whereas at a higher level it may correspond with disgust in institutions and elites, and spills and environment accidents will only directly affect those living along Keystone whereas climate change as the result of tar sands production has global implications.

In order to control for volume, abstract versus concrete frames are calculated as a proportion of total volume within the proximate or distant states. Figure 3 shows the proportion of tweets within each frame category. Figures 4 and 5 summarize these by abstract or concrete frames.

Figure 3: Proportion of tweets for abstract and concrete frame categories



The heights of the bars indicate the proportion of tweets within that category, controlling for the total volume within the distant or proximate states. Abstract frame categories are shown on the left and concrete frame categories on the right. The expectations from the hypotheses are there will be a greater proportion of abstract framed tweets in the distant states and a greater proportion of concrete framed tweets in the proximate states. The black bars would therefore be higher on the left side and the gray bars higher on the right side. The results are mixed. While Keystone XL is more likely framed in terms of climate change in the distant states than the proximate states (significant at 95%), there are relatively small differences due to distance in the case of the other abstract frame categories.

Similarly, there are far more references to jobs and local economics in the proximate states than the distant states (significant at 95%), but a greater reliance on the protest frame in the distant compared to the proximate states (significant at 95%). The other two categories record nearly identical proportions and do not vary by distance.

Figure 4: Proportion of distant or proximate tweets using concrete versus abstract frames

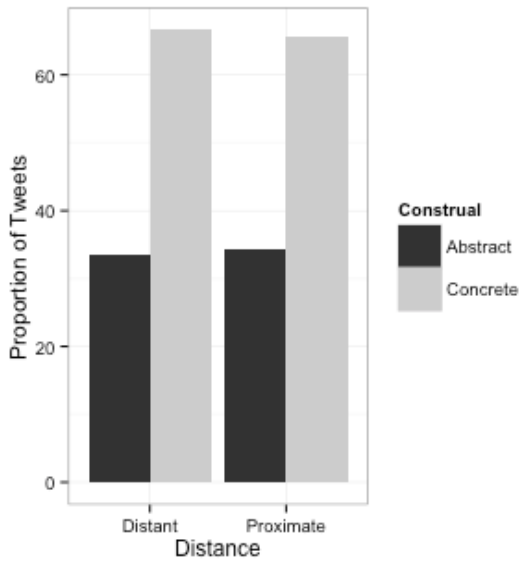
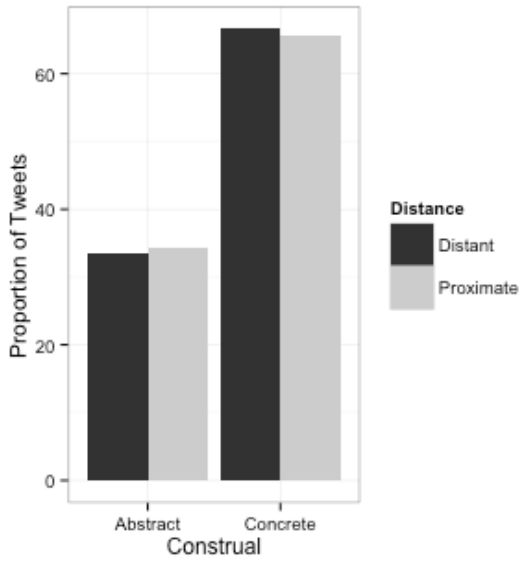


Figure 5: Proportion of abstract or concrete framed tweets




In both figures the height of the bar corresponds to the proportion of tweets meeting the criteria. Based on Hypothesis 2a and 2b, I expect there to be more abstract than concrete frames used in the distant states and more concrete than abstract frames used in the proximate states. Contrary to the hypotheses, concretely framed tweets are more common in distant than proximate states, and abstractly framed tweets are more common in proximate states than distant ones. They hypotheses are, therefore, rejected. However, the differences are so substantively small that even though they are significant at 95% confidence, they are practically zero.

The expectation of Hypothesis 2c and 2d is that there will be more concrete frames used in proximate states than distant states and more abstract frames used in distant states than proximate states. Figure 5 shows little difference between the amount of abstract frames and concrete frames used between proximate or distant states. Both clearly prefer concrete frames and the difference due to location is not statistically significant at 95% confidence. Hypotheses 2c and 2d are, therefore, rejected.

For hypotheses 3-5, concerned with variations in construal, geotagged tweets were collected manually between November, 2014 and March, 2015 in distant and proximate states. In total 61 tweets were collected from the proximate states and 55 from the distant states. Figure 5 shows the city location of these tweets. Because construal is so dependent on distance it was important to ensure the tweets were specific to the states of interest without depending on CH's location methodology.

Figure 6: Geotagged Tweets


There were no geotagged tweets in South Dakota and those in Illinois came solely from Chicago (far removed from the current route). Both states were removed from analysis.

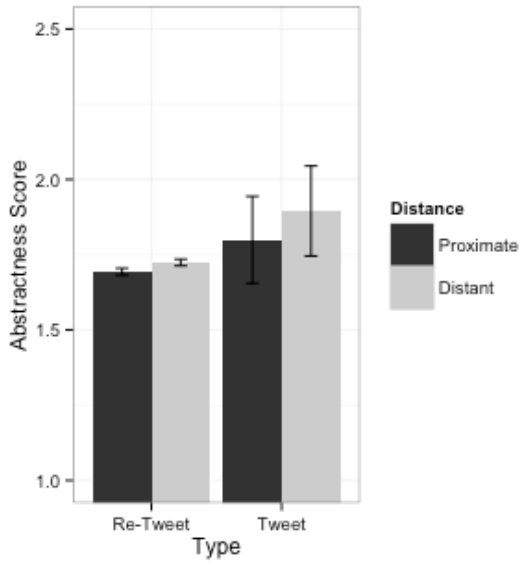
In addition, to allow a comparison between tweets and re-tweets, all tweets that were re-tweeted ten times or more were manually extracted from CH's platform. Two-hundred and seventy-nine unique re-tweeted tweets corresponded to the distant states and 262 to the proximate states. The most re-tweeted message in the proximate states came from Senator Ted Cruz stating, "Meanwhile at the White House: #KeystoneXL http://t.co/xGX3MbRSIt" and was re-tweeted 140 times. In the distant states, the tweet "No one who is serious about

reversing global warming could support the #KeystoneXL pipeline. #NoKXL http://t.co/5boRmMujiu" from Senator Bernie Sanders was re-tweeted 190 times.

The Linguistic Category Model (LCM) from Semin & Fiedler (1988) was used to manually code tweets and re-tweets for abstractness. The model allows users to classify verbs and adjectives used in interpersonal language. There are four classifications for verbs and one classification for adjectives. For each tweet or re-tweet the verbs were classified as either 'descriptive action verbs' (DAV), 'interpretive action verbs' (IAV), 'state action verbs' (SAV) or 'state verbs' (SV). Descriptive action verbs refer to specific actions with a physically invariant feature, such as to hit, yell, or walk. Interpretive action verbs refer to a multitude of different action not sharing a physically invariant feature, such as help, tease, avoid. State action verbs are similar to IAV's, but refer to the emotional consequences of action. State verbs refer to an emotional state such as to admire or hate. Finally, adjectives refer to characteristics of features qualifying a person or object. The relative proportion of adjective and verb use allows the coder to calculate an abstractness score for each item.

Descriptive action verbs are given a score of 1, IAV's and SAV's a score of 2, SV's a score of 3, and adjectives a score of 4, ranging from most concrete to most abstract. A total score was calculated for each tweet or re-tweet and divided by the number of items coded within the line of text. This coding scheme results in a possible score for each tweet or re-tweet ranging from 1 (concrete) to 4 (abstract). Figure 7 show the mean abstractness scores for tweets and re-tweets by distance.

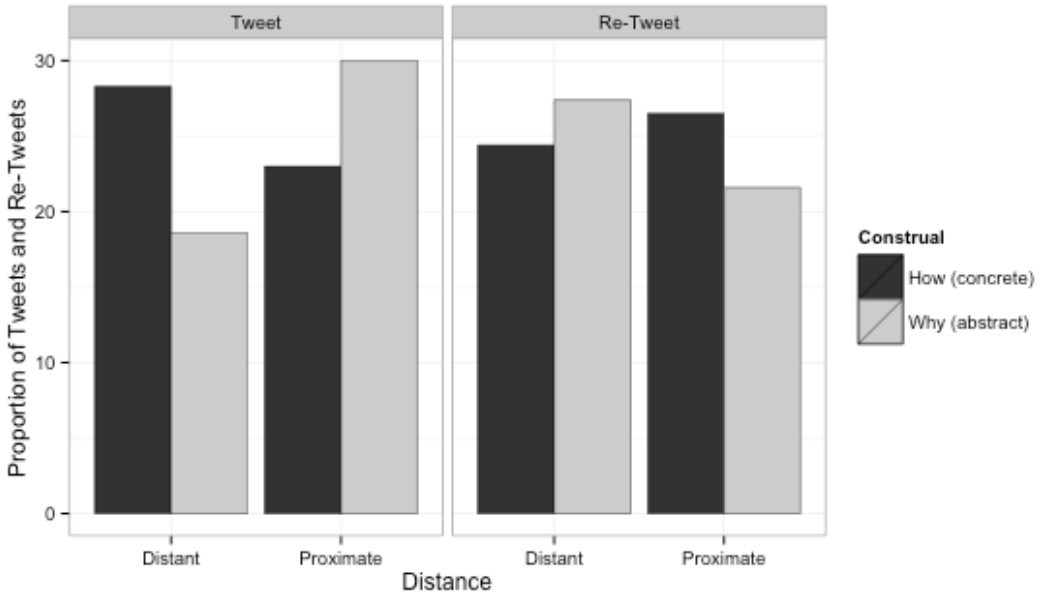
Figure 7: Abstractness of tweets and re-tweets by distance




In Figure 7, the height of the bars represents the mean abstractness score from the LCM coding scheme. The dark bars correspond to tweets or re-tweets from proximate states and the light bars correspond to tweets or re-tweets from distant states. The error bars show 95% confidence. Hypotheses 3 and 5 posit tweets or re-tweets from proximate states will be more concrete than those from distant states. In both cases, the abstractness score is higher for distant states than proximate states, in line with hypothesis 3. This difference is statistically significant at 95% confidence for re-tweets, but not tweets. Nonetheless, it is important to note that the difference between proximate and distant retweets is substantively small. The failure to find a statistically significant difference in the case of tweets likely comes as a result of the small N (59 proximate and 52 distant tweets compared to 6,989 proximate and 7,470 distant retweets).

Tweets and re-tweets were also coded for ‘why’ and ‘how’ as an alternative measure of construal. The data is cut two different ways for Hypothesis 4. Construal is compared across and within distance.

Figure 8: Proportion of tweets and re-tweets by distance and construal




On the left of the figure are the proportion of tweets corresponding to how or why references in distant or proximate states. The black color is associated with 'how' references with the 'gray' associated with why references. On the right of the figure re-tweets are similarly categorized. The fourth and fifth set of hypotheses suggest a proximity will be associated with 'how' (more concrete) and distance associated with 'why' (more abstract) features.

In the case of tweets, there are fewer 'how' references in proximate states than distant states, fewer 'why' references in distant than proximate states, and fewer 'why' references than 'how' references in distant states. All three of these findings are contrary to the expectation. The only result suggestive of hypothesis 4 in the case of tweets finds more 'how' than 'why' references in proximate states. None of these differences are significant at 95% confidence.

All four results are supportive of the relationship between distance and construal level in the case of re-tweets, as suggested by Hypothesis 5. A greater proportion of re-tweets characterize 'how' aspects of the issue in the proximate states, whereas this number is lower in the distant states. In addition, there are more 'why' related tweets in the distant state than the proximate states. There are more 'how' than 'why' re-tweets in the proximate states and more 'why' than 'how' re-tweets in the distant states. All of these differences are statistically significant at 95% confidence.

**Discussion**

Relying on salience theory from political communication and the CLT of psychological distance from social psychology, five hypotheses were derived to reflect the expected relationships between political communication and geographic distance. Analysis of tweets and re-tweets referencing the Keystone XL pipeline produce mixed findings. In general, three overarching relationships were explored: 1) there will be greater discussion within proximate states as the issue should be more salient to them, on average, than those living further away; 2) concrete, low-level frames will be utilized more in proximate states and abstract, high-level frames utilized more in distant states; and 3) communications coming from proximate states will be more concrete and those coming from distant states more abstract.

Although a higher average per capita tweet volume was identified in the proximate states and cities than the distant states, the difference due to geographic distance is not statistically significant and I can therefore not rule out that it was detected by chance. The small sample size, constrained by a value per state, may be responsible for this. As opposed to relying on an average per state over the entire time period an alternative method would

rely on per capita values per state per month, or even year, increasing the size of the sample considerably.

When comparing abstract (energy policy and national security, climate change, anti corporations and elites, and overall disgust) to concrete frames (jobs and local economy, spills, safety, and environment, lack of economic benefits, and protest reports) within distant and proximate states, overall more concrete frames were utilized in both the proximate and distant states. Thus, regardless of distance, the public appears to rely on concrete, low-level frames more than abstract, high-level frames and this relationship is statistically significant.

More specifically, only in the case of climate change is there a greater proportion of tweets in the distant states than the proximate states. Two out of the four concrete frame categories demonstrate differences due to distance. While jobs and local economy is in the expected direction, with more tweets in the proximate than distant states, protest reports are in the opposite direction, with more tweets in the distant states than proximate states. Although these categories were specifically chosen based on their defensible expected relationship to distance, the results do not clearly confirm my suspicions. One explanation is that the categories do not clearly represent abstract versus concrete frames. Another is that in the case of protest reports there was a significant amount of activity in New York, which is increasing the proportion of tweets.

According to the literature, construal level comes in many forms two of which are overall abstractness of the text and 'why' or 'how' representations. Both tweets and re-tweets were analyzed for these qualities in order to allow a comparison between two very different activities: individual tweet construction and re-tweeting that represents the persuasiveness of a previously composed tweet. A greater proportion of 'how' tweets were utilized by those

living in distant states and more 'why' tweets were used in proximate states. This is in directly conflict with the expectations of CLT. Alternatively, more 'why' re-tweets were found in distant states and more 'how' re-tweets found in proximate states, as the theory would expect.

The abstractness of tweet and re-tweet construction tell a slightly different story. Both distant re-tweets and tweets were more abstract than proximate tweets and re-tweets. This result is statistically significant for re-tweets, but not tweets.

Unlike an original tweet, a re-tweet reflects messages that resonate with the individual. The individual does not have to compose the tweet, just signal how persuasive it is with a re-tweet. Re-tweets reflect those tweets of interest, most likely coming from elites, interest groups, and media who have a much greater reach. The public appears to recognize and prefer those tweets that match mindset and location, but don't always reflect the expectations of CLT when composing their own tweets. It is possible that exposure to tweets from elites represents a similar cognitive process as other media effects, including framing, such that distance effects are evident. This could be different cognitively from individual tweet construction that may more closely resemble interpersonal conversation or political discussion.

**Conclusion**

Very little is known about how political outcomes and processes vary across the geographic landscape, and yet anecdotes and cases point to variability as a result of the distance from political issues. This research unites theories from political science with those from social psychology, namely the Construal Level Theory of psychological distance, to make generalizable claims for how politics varies geographically. According to CLT, with

distancing individuals are more apt to rely on high-level, abstract considerations when evaluating something and with proximity they turn to low-level, concrete features instead. I specifically confine this study to political communication in social media.

The analysis of hundreds of thousands of tweets pertaining to Keystone XL tells an interesting story. While CLT predicts a preference for communication that matches mindset to location, the data suggest otherwise. While there is increased communication regarding the issue in the most proximate states, the use of high-level, abstract language does not consistently correlate with distancing in the case of public tweets. Similarly, there is not an obvious preference for frames emphasizing subordinate versus superordinate considerations based on geographic proximity. Therefore, at least in its construction of tweets, matching mindset to location is not on the forefront of the public's intentions.

While additional work is necessary to flush out this stark difference, initially this study suggests that the public knows it when they see it, but are not actually that cognizant of it themselves in their tweet construction. Twitter is based on networks. As such, individuals are flooded with messages coming from a variety of individuals, not constrained by geography. However, because one does not have the time to re-tweet or reply to every message received (as well as the fact that such an action would go against Twitter norms), you must be selective. Ultimately, those tweets that resonate the most are the most likely to be re-tweeted. In this case, that means tweets emphasizing the low-level consideration of Keystone XL for those living in the affected states, and those emphasizing the high-level considerations for those living further away, in California and New York. Nonetheless, when it comes to composing one's own tweets, there are a myriad of considerations, and this is assuming that individuals are thoughtful in their process, which they are likely not, as Twitter

incentivizes spontaneous, not necessarily well thought out, dialogue. This study does not bear out the cognitive differences between tweeting and re-tweeting. More work with greater statistical power is necessary to appreciate the mechanisms involved.

Future work will continue to investigate the relationship between politics and distance by expanding the theoretical contributions presented here to other policy issues, especially those presenting particular geographic considerations and variable public opinion, such as wind power, high powered transmission lines, oil transport by rail, offshore oil drilling, fracking, and the transportation of mega-loads. As the data on geotagged twitter messages grows, it will be possible to compare political communication efforts across space at a very fine scale. This will help address when distance does or does not matter and precisely what the relationship between distance and political action looks like. In addition, I hope to apply many of the lessons learned here to a theory of political elites, in particular groups. Groups, unlike the public, are strategic in their activities and messaging. Moreover, social media has given a national voice to local, grassroots organizations. Construal level theory can tell us something about how local groups may respond differently to local issues than national groups and vice versa.

Construal Level Theory, integrated with themes found in political science and communication, provides a generalizable explanation for how opinions and communications vary across space. With distancing comes a greater reliance of particular features of the issue environment and subsequently an alternative evaluation. By turning to this cognitive process, it is possible to highlight the role of space in political processes and outcomes.

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## THREE: The Influence of Distance on Group Behavior and its Effectiveness

### Introduction

This work applies the Construal Level Theory (CLT) of psychological distance to assess the influence of geographic distance on both group behavior and the public's perceived effectiveness of their strategies. According to the theory, as something moves closer in space, it is construed through its concrete features; in contrast, as it moves further away, it is construed more abstractly (Trope & Liberman, 2010). Because of this, messages that match level of abstraction (commonly referred to as 'mindset') and location are more persuasive than those that do not. I argue that political advocacy groups are aware of and responsive to this cognitive element and adjust their mass communication strategies accordingly, reflecting distance alongside additional ideological and resource considerations.

Political advocacy groups differ significantly in their goals and approaches. How they discuss or frame issue is known to be important component of their repertoires of action (Mitchell, Mertic, & Dunlap, 1991). Their communications affect how an issue is perceived (McAdam et al. 1996), may provide a unifying umbrella for the movement (McCarthy, 1997; Roots, 2013), and often serve to mobilize the public (Smith, Pagnucco, & Chatfield, 1997; Benford & Snow, 2000). While locally-based groups, pursuing local political issues, and national advocacy groups, often located in D.C. and New York and focused on a range of political issues, traditionally existed somewhat isolated from one another (Diani & Donati, 1991; Garaven, 2007), reduced barriers to political communication allow for opportunities to appeal more broadly (Olson, 2008), both to national and local publics.

Construal Level Theory provides expectations as to how these communication strategies should differ in effectiveness depending on the proximity of the public to the

policy site. At the same time, political advocacy groups have different communication strategies based on who their target audience is, the resources afforded them, and their ideological leanings (Lyon & Maxwell, 2004; Ratkiewicz et al., 2011; HerdaĞdelen et al., 2012; Bennet, 2012). These considerations result in three primary hypotheses. First, both local and national groups will attempt to appeal to a broad section of the U.S. public. Second, this is moderated by resource considerations, with more conservatively leaning groups less apt to pursue broad support than more liberally leaning groups, due to fewer resource constraints. Third, the public is more persuaded by communications that match construal and geographic distance from the policy issue than by communications with mismatches.

To address the above hypotheses, I analyze local and national group frame use on Twitter related to the Keystone XL expansion pipeline from January, 2010 to May, 2015. The results suggest local and national anti-Keystone XL groups both rely on a mixture of frames in order to appeal to those closest to the issue as well as the national public. As expected, the pro-Keystone XL groups rely almost exclusively on one frame in their messaging, not needing to reach out beyond their pre-existing networks. The results also indicate that both groups and the public prefer concrete frames, contrary to the expectations of CLT.

The rest of the paper proceeds as follows: I develop the theoretical relationship between group behavior and proximity to the policy site, in light of additional membership, ideological, and resource considerations. After which, the case and methods are outlined and results discussed. I conclude with implications and future directions.

**Theorizing local and national group framing strategies**

Political groups vary considerably in their strategies to affect policy outcomes. They differ both in terms of behaviors and memberships, often making it difficult to determine precisely how they influence the political process (Baumgartner & Leech, 1998). Nonetheless, there is evidence of direct implications for various stages of the policy cycle, including agenda setting, policy making, and implementation (Smith, 1992, Chapter 4). While this process is shifting due to changes in technology, groups continue to deploy online and offline strategies (see Karpf, 2012; Hodges & Stocking, forthcoming).

Prior work has served to examine specific groups strategies, memberships, and policy impacts, including the ways in which groups are responding to the Internet and social media. This study investigates groups through an added lens, asking how group strategies vary based on distance from the policy issue. Policy issues differ in their private/public implications based on a number of considerations. Scholarship demonstrates important variations due to income (Lynch et al., 1998; Wagstaff & Van Doorslaer, 2000), race (Mauer & King, 2007; Pettit & Western, 2004), and gender (Korpi, 2000; Blau & Kahn, 1994) among others. The realities of policy also vary by distance, which may be understood in terms of time, space, social, and hypothetical (Liberman & Trope, 1998; Trope & Liberman, 2010). This work is concerned specifically with geographic distance, arguing that policies vary geographically in terms of the costs and benefits they pose to particular communities. As an artifact of this, group communication strategies too should vary based on their perspective geographic distances from policy issues.

The Construal Level Theory (CLT) of psychological distance generalizes the relationship between distance (either special, temporal, social or hypothetical) and mental evaluation. An event, item, or issue can be thought about or described based on a multitude

of considerations. Distance influences which considerations one may rely on during this process. The theory has two primary features – mindset/construal and distance. When something is perceived as proximate, it is evaluated based on concrete considerations (low-level construal), but when something is distant they represent it in terms of abstract features or general schemas, known as high-level construals[21] (Liberman, Trope & Stephan, 2007).[22]

Most importantly, for the purposes of this project, CLT emphasizes the significance of matching mindset and location. Individuals more proximate to an issue consider it in concrete terms and those more distant to an issue rely on abstract features, thus, they are more persuaded by information that aligns construal and distance. For example, prior work, assessing voting behavior relative to particular types of messages and temporal distance focused on the persuasiveness of messages using abstract, high-level themes when voting is in the distant future, compared to low-level, concrete messages, which were more effective under temporal proximity (Kim, Rao, & Lee, 2009).

Understanding how individuals are influenced by distance allows me to conjecture about the influence of distance on group behavior. Groups are motivated by what they believe will be or will not be effective. Included in this is a reflection on how the public perceives their efforts. Subsequently, groups adjust their strategies based on who they hope

[21] This is due to the fact that as individuals move further away from something they have less direct experiences and less information about the item (Liberman, Trope, and Stephan 2007).
[22] Prior work finds political attitudes related to public health (Chandran & Menon, 2004), voting behavior (Kim, Rao & Lee, 2009), recycling (White, McDonnell & Dahl, 2011; Goldsmith et al., 2011), radon risk perception (Zwickle & Wilson, unpublished data) and climate change (Spence, Poortinga & Pidgeon, 2012; Haden et al., 2012) are explained by CLT. In addition, a survey experiment finds framing effects are mediated by policy issue distance (Hodges & Collins, in review) and content analysis of Twitter data reveals individuals are more persuaded by and more likely to retweet those tweets that match distance and construal (see Chapter 2).

to influence as individuals are more or less responsive to group tactics depending on distance from the issue.

Geographic distance ultimately intersects with additional considerations. This research partitions groups along three dimensions based on membership, resource, and ideological concerns. By no means does this specification qualify all groups, but it does allow for a general description of group variation. The first dimension categorizes groups as either local or national in terms of their operational goals and relative memberships. The second dimension distinguishes groups that have more liberal or more conservative leanings. The third differentiates groups based on the presence or absence of resource constraints.

Traditionally, national and local groups often behaved as distinct entities. National groups typically have access to broader publics due to the visibility of many of the issues they focus on, whereas local groups may deal with invisible or low-visibility problems with limited publics to draw from (Garavan, 2007). National groups tend to focus on policy objectives at a larger political scale, whereas local groups can turn to small-scale, dispersed protest (Garavan, 2007). In addition, in the past national groups have sought to maintain a certain amount of distance from local activities (Diani & Donati, 1999), although there was some recognition that national groups may benefit from local efforts. Connections with local groups allow them to mobilize resources at all levels and make demands for local governments, states, regions, and federal governments (Zald, Morrill, & Rao, 2005). More over, there is a strong reliance on local chapters by national groups to accomplish particular, 'on the ground,' activities (Olson, 2008).

While the goals and incentives of national groups surely differ from those of local groups, in general both benefit from increased mobilization that may come from rallying

their perspective bases or expanding their networks. Under prior models of collective action, groups had to pick and choose how to use their resources, careful not to invest in activities having little benefit. Thus, local groups to some extent were forced to stay local and national groups forced to maintain a broad view. However, social media affords very inexpensive opportunities for both local and national groups to reach beyond traditional boundaries.

The Internet and social media allow for greater coordination between local and national groups and publics (Olson, 2008), blurring previously inhibitive geographic boundaries. While some individuals may continue to turn to local groups, there is now more potential for connection to large national groups (Kavanaugh et al., 2008). Similarly, national groups are more inspired to seek out local connections. For example, the Sierra Club, dismayed with the lack of national climate change legislation, has more recently pursued action at the local and state levels (Karpf, 2010). The marginal costs of composing a tweet, for example, are so slight that local groups can attempt to 'go national' and national groups attempt to 'go local' at the same time maintaining those activities that inspire either localized or more national publics. In this new communication environment, it is possible to simultaneously appeal to a diverse cross-section of the American public. Construal Level Theory informs us that these appeals vary in effectiveness depending on the location of group members or potential members. According to my first hypothesis, all else equal:

> *Hypothesis 1: Both local and national groups will attempt to appeal to diverse publics, both locally and nationally.*

Groups do not only vary by where they operate. Whether local or national, they face additional considerations that are likely to influence operations. For the purposes of this work, ideological interests are directly related to resource constraints and ultimately group

strategies. National conservative groups and local 'Astrotuf'[23] counterparts, often rely on covert corporate sponsorship (Lyon & Maxwell, 2004), and therefore have limited resource constraints compared to other local and national groups. While these groups may be more 'astroturf' than grassroots in nature, due to means of financial support and prominent leadership they are perceived by the public to be local or grassroots (Skocpol & Williamson, 2012). Right wing and/or 'astrotuf' groups are increasingly turning to social media to mobilize support for conservative issues and opposition to liberal agendas (Ratkiewicz et al., 2011). That being said, due to fewer resources limitations than other groups, they are granted alternative opportunities to affect policy change outside online strategies, such as congressional lobbying and advertising. In other words, while liberal groups rely significantly on public support to overcome resource constraints, conservative, corporate-sponsored interests need not spend the same sort of effort on expanding their networks. According to my second hypothesis, all else equal:

> *Hypothesis 2: More liberally oriented groups will attempt to appeal to diverse publics, both locally and nationally, more so than more conservatively oriented groups.*

Finally, regardless of to whom groups are trying to appeal, the strategies used should differ in effectiveness based on the location of the individual user. In line with CLT, those closest to the issue should be more persuaded by concrete information, whereas those further away are expected to prefer abstract information (Kim, Rao, & Lee, 2009; Zwickle & Wilson, unpublished data). According to my last hypotheses, all else equal:

*Hypothesis 3a: Those closer to an issue will be more persuaded by concrete information than those further away.*
*Hypothesis 3b: Those further from an issue will be more persuaded by abstract information than those who are closer.*

[23] 'Astroturf' groups are argued to be artificial grassroots campaigns created by public relations firms (Lyon & Maxwell, 2004).

*Hypothesis 3c: Those closer to an issue will be more persuaded by concrete information than abstract information.*
*Hypothesis 3d: Those further from an issue will be more persuaded by abstract information than concrete information.*

**Case Selection**

This study selects environmental policy, and more specifically, the issue of Keystone XL as an appropriate case to evaluate the above hypotheses. Groups are widely recognized as an important feature of the environmental policy arena. As intense public interest pertaining to the environment is known to decline post-problem, groups are necessary to maintain awareness and concern (Downs, 1972; Baumgartner & Jones, 1993). Thus, groups are a known entity in environmental policy outcomes.

At the same time, environmental issues are similar to other socially relevant issues. Both deal with unrepresented or marginalized communities, an under provision of public goods, and come up against powerful interests. For example, group characteristics and strategies are similarly documented in environmental justice (Faber & McCarthy, 2001), civil rights (McCarthy, 2005), and the 'Battle in Seattle' (Smith, 2005).

At the same time, because environmental problems range in scale, source, and implications, groups differ significantly in their approaches (see Mitchell, Mertig & Dunlap, 1991). The nature of environmental problems also allows local groups to more easily connect with other local and national groups and visa-versa (Schlosberg, 2007). As this work is largely comparative, the case must adequately allow for comparisons between groups within the same policy area.

Within the context of the environment, the issue of Keystone XL allows us to consider group differences based on geographic distance, ideology, and resource considerations.

First, approval or rejection of Keystone XL presents differentiated local and national

costs and benefits. The expansion pipeline would carry tar sands oil from Alberta, Canada to refineries in Oklahoma and Texas. Those along the pipeline will receive local economic benefits, but also be faced with risks to the environment and property. Those outside the affected states may too benefit, but not in terms of local economic production. Instead they may benefit from increased national security or reduced gas prices. They also will not experience the direct risks posed by the project, although they may feel the increased effects of climate change.

Second, local, national, pro-environment, and pro-development interests are captured by the contentious nature of Keystone XL. For example, the anti- Keystone XL groups Bold Nebraska and KXL Blockade have reached national prominence alongside national environmental groups such as the Sierra Club. On the other side of the issue, Nebraska Jobs and Energy and Energize Minnesota, local pro-development groups, push for approval with the assistance of national organizations such as Energy Tomorrow.

There are a variety of strategies utilized by groups to affect policy. This work focuses specifically on online framing strategies deployed via Twitter. Framing, the "strategic efforts by groups of people to fashion shared understandings of the world and of themselves that legitimate and motivate collective action" (McAdam et al. 1996, p. 6), is used by groups to bridge connections between groups and individuals (McCarthy, 1997), mobilize support, and alter elite perceptions of problems (Smith, Pagnucco & Chatfield, 1997; Benford & Snow, 2000). Thus, framing is about mobilization and collective action. However, framing is also about perception. Similar to well known media influences (Iyengar, Peters & Kinder, 1982; Iyengar, 1994), groups rely on framing to identify problems, their sources, and possible solutions.

Due to the Internet, and more recently, social media, groups are granted a new medium to engage in political communication and they are clearly taking advantage. In a survey of 169 individuals from 53 advocacy groups of various sizes, all stated that they use social media to connect with citizens on a daily basis (Obar, Zube & Lampe, 2012). Specifically in the case of Twitter, groups rely on dialogue, community-building, promotion and mobilization to make connections to other groups, the media, elites, and individuals (Lovejoy & Saxton, 2012).

This research argues that frames may serve an even greater importance for groups due to the increased ability to circulate them within and across networks on social media. Closer examination into how social media affects group formation and behavior is noted across a handful of cases;[24] however, admittedly we place so much focus on the individual under social media that the effect of new technology on groups is only limitedly understood (Fenton & Barassi, 2011; Karpf, 2012).

A handful of studies examine groups in light of social media. These differ between those focused more on how groups are utilizing social media in general (see Guo & Saxton, 2012; Hodges & Stocking, forthcoming) and how groups utilize different frames to achieve their goals. Groups frame issues differently depending on whether they are interested in local, national, or international issues and more conservative or liberal in nature (Herdagdelen et al., 2012). For example, during the Occupy Movement, groups on the Left

[24] The Internet and social media ease recruitment efforts (Taylor, Kent, & White, 2001) and help to mobilize the online and offline community (Hara 2005; Krueger 2006; Karpf 2010; Van Laer 2010; Walgrave & Bennett 2011). In the case of anti-Iraq protests for example, mobilization was achieved through networks based on loose ties (Bennett, Breunig, & Givens 2008). In addition, in the case of the Arab Spring Facebook worked to significantly expand the size and length of the movement (Tufekci & Wilson, 2012). Others have reached similar conclusions (see Eltantawy & Wiest, 2011; Ghannam, 2011; and Khan, 2012).

framed the issue in terms of 'fairness' and those on the Right focused on 'economic growth' (Bennett, 2012). As much as frames serve to define the problem, they are also important in their ability to mobilize support.

Master frames have been shown to help form coalitions between local and national environmental movements (Rootes, 2013) and allow collaboration and cooperation between labor unions and environmental organizations (Mayer, Brown & Morello-Frosch, 2010). Other evidence points to the importance of customizable action frames, which are open to interpretation by individuals and other groups, but acknowledges that groups differ in their propensity to rely on them (Bennett & Segerberg, 2011). The added benefits of social media help to align frames across the public sphere, as was the case in the protest to the Dutch '1040-hour norm' (Bekkers et al. 2011). Frames have also been used to bridge Christian values and economic development in the case of the Christian right and the Tea Party movement to mobilize their perspective bases (Wilson & Burack, 2012).

As a social media platform, Twitter offers benefits over alternative sites because of the public availability of Twitter and the ability to access the entire population of Twitter users. While Twitter users most certainly represent a unique cross-section of the public, there is no reason to suspect that groups' strategies differ significantly from Twitter to Facebook or other social media platforms.

**Variables**

From the hypotheses the following variables are further described.

More liberally oriented groups are specified as follows:

*National-anti-:* These groups are based in D.C., New York, or online only. While they may have local chapters within the affected states, their primary location or purpose is not confined to Keystone XL. They are opposed to the project.

*Local-anti-:* These groups are focused almost exclusively on the issue of Keystone XL and physically operate within or near the proposed route. They are opposed to the project.

More conservatively oriented groups are specified as follows:

*National-pro-:* These groups are based in D.C., New York, or online only. While they may have local chapters within the affected states, their primary location is not confined to Keystone XL. They are in favor of the project.

*Local-pro-:* These groups are focused almost exclusively on the issue of Keystone XL and physically operate within or near the proposed route. They are in favor of the project.

**Methodology**

Prior work (Hodges & Stocking, forthcoming) identified prominent pro- and anti-Keystone XL local and national groups via Google and Twitter searches.[25] Once identified, groups were specified as one of four categories, local-anti-, local-pro-, national-anti-, national-pro-.[2627] Tweets were collected from January 1, 2010 to May 31, 2015 using

[25] Groups were identified from their own activity related to the issue as well as reference to them from news organizations.

[26] Local groups consisted of those organizations operating exclusively within the affected states on the issue of Keystone XL. Although Energize Minnesota is not within the pipeline route, this group posses many of the characteristics the other 'local' groups do, including its grassroots beginnings and focus on issues within the state of Minnesota.

[27] Because a number of the anti-Keystone XL groups are not inherently pro-environment they will be labeled as anti-Keystone XL with the opposing groups labeled pro-Keystone XL.

software from Crimson Hexagon. Crimson Hexagon's software allows users to conduct Boolean searches against the 'full firehose' of tweets, which comprises all public tweets.

The below search string appeared to return the most expansive set of results for both anti- and pro-Keystone XL groups and retweets, while excluding tweets not directly related to the issue (such as Keystone beer, Keystone Resort, Keystone RV's, etc.).

((keystone AND (pipeline OR oil)) OR KeystoneXL OR kxl OR nokxl)

Table 1: Groups in favor to or opposed to Keystone XL on Twitter

| Type | Author |
|---|---|
| *Local Anti-Keystone XL* | @KXLBlockade |
| | @BoldNebraska |
| *National Anti-Keystone XL* | @350 |
| | @sierraclub |
| | @TarSandsAction |
| | @CenterForBioDiv |
| | @NRDC |
| | @foe_us |
| | @ClimateReality |
| | @NRDCBioGems |
| | @NextGenClimate |
| | @NWF |
| | @Greenpeace |
| *Local Pro-Keystone XL* | @EnergizeMN |
| | @nejobsandenergy |
| *National Pro-Keystone XL* | @EnergyTomorrow |
| | @TransCanada |
| | @EnergyNation |
| | @BuildKXLNowORG |
| | @Senate_GOPs |
| | @RedNationRising |
| | @ResourceEarth |
| | @GOP |
| | @IERenergy |
| | @USChamber |
| | @KXLFiles |
| | @NRSC |
| | @HouseGOP |

Local groups account for a significant amount of overall Twitter activity related to the Keystone XL. KXL Blockade, a group out of Texas, is in particular more active than the others, tweeting about Keystone XL over 5,000 times from January, 2010 – May, 2015. There are also stark differences in national group presence. For example, 350.org, a group originated by Bill McKibben to combat climate change, sent out 1,600 tweets, while Greenpeace contributed only 33. Perhaps not surprisingly the official handle for Trans Canada (the corporation behind Keystone XL) sent out over 500 tweets, whereas the House GOP, a staunch political supporter of Keystone XL, sent only 19. One group of particular interest is Energize Minnesota, a grassroots group based out of Minnesota, with considerable interest in Keystone XL despite the fact that pipeline is not proposed to pass through the state.

Crimson Hexagon's online software is capable of identifying tweets from a set of users and sorting these based specified criteria or categories. Supervised machine learning, derived from the popular ReadMe tool, assists in content analysis. Predominant anti- and pro-frames were identified from a subset of hundreds of tweets. The process was iterative. That is, as new frames were identified they were added to the list of frames. This process classified 11 frame categories and 3 non-frame categories (media/reports, general pro-, and general anti-). For each category, a colleague and I identified a minimum of 30 tweets that fit the specified frame. We were careful to select only those most appropriate for the category in order to ensure assistance with the machine learning. Once this process was complete, the software isolated relevant phrases using a bag of words technique in the broader population of posts and categorizes them accordingly (Hopkins & King, 2010). Once the software

completed assignment, a subset of tweets was checked for frame placement to ensure proper categorization.

The 11 frame categories, example Tweets for each, and whether they were derived from pro- or anti-Keystone XL groups are shown in Table 2. During frame specification and categorization, 7 unique anti-Keystone XL frames were identified and 4 pro-Keystone XL frames.

Table 2: Anti- and Pro-Keystone XL frames

| Sentiment | Frame | Tweet |
|---|---|---|
| Pro-Keystone XL | Jobs and Local Economy | Oil indust makes econ pitch for Keystone XL via @fuelfixblog #energy #jobs #oil |
| | Energy Policy and National Security | If Egyptian violence shuts down the Suez Canal, expect astronomical fuel prices that the Keystone Pipeline could've averted |
| | Political Pressure | @TheKronies @MarkUdall Tell Udall to support the Keystone Pipeline! People in his own state don't agree with him |
| | Overall Disgust | RT @noobamanoway #VA = #Obamacare = Socialist medicine at it's worst. Had enough of the treason? #VACoverUp #FnF #Benghazi #Keystone XL #Obamacare #AP #Etc |
| Anti-Keystone XL | Anti- Corporations and Elites | Keystone XL Amounts To America's Pipeline Vs. President Obama's Cronies |
| | Direct Political Action | Only 9 more people needed to hit our goal of 500 helping DC say #NoKXL on Thunderclap. Will you be number 500? |
| | Spills, Safety, Environment | #Texas oil spill 12 miles long…blocks ships #nokxl would increase shipping Gulf |
| | Climate Change | RT @sierraclub Why Keystone XL flunks the #climate test: (the latest from @bruneski) #NoKXL |
| | Lack of Economic Benefits | RT @KXLBlockade Permanent #jobs created by Keystone XL will be less than a single Applebees. #nokxl |
| | Protest Reports | Activists March in Opposition of Keystone XL Pipeline, Climate Change |
| | Threats to Tribal Lands | No Tar Sands / No Keystone XL Pipeline / No Trespassing on Lakota Nation treaty lands |

In order to explore the specified hypotheses, the proportions of tweets for each frame category are compared between local-pro-, local-anti-, national-pro-, and national-anti-groups. In addition, a handful of local (Energize Minnesota, Nebraska Jobs and Energy, Bold

Nebraska, KXL Blockade) and national (350.org, Sierra Club, Energy Tomorrow and Build KXL Now) groups were selected for additional analysis. These groups all exhibit considerable activity related to the issue but differ on a number of fronts.

Finally, to see which frames were most effective based on distance and group, retweets were categorized and analyzed. In Twitter, individuals signal the persuasiveness of a message by retweeting it and subsequently sharing it with others within their network. Twitter users retweet for a number of reasons, including to signal breaking news or time sensitive material, share what might be of interest to others in their networks (Boyd, Golder & Lotan, 2010), and the sentiment of the tweet (Stieglitz & Dang-Xuan 2012). By retweeting, the individual is signaling to others in his or her network that the information is important or should be of interest to them. Retweets are different in that they signify how others (public, groups, media) perceived the framing strategies used by pro- and anti-Keystone XL groups. While tweets tells us what groups are doing, retweets tells us what works.

A new Boolean search string pulled all retweets of local and national groups in favor or opposed to Keystone XL from January 1, 2010 – May 31, 2015. Users were identified as distant or proximate to the proposed pipeline.[28]

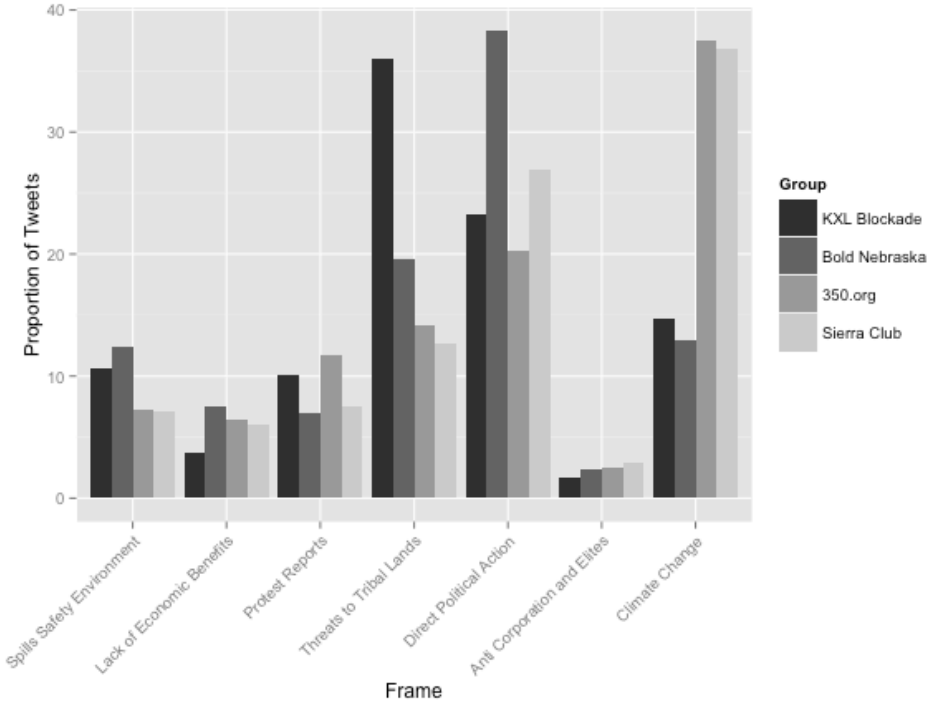
**Results**

Two local and two national groups from the pro- and anti- sides were selected to allow for an initial, descriptive comparison of frame use on the issue of Keystone XL. Before

[28] Although not all Twitter users identify their location, Crimson Hexigon is able to approximate the state of nearly 75% of all users. Proximate users included those residing within the proposed route (Montana, North Dakota, South Dakota, Kansas, Nebraska, Oklahoma, Texas). Distant users are all of those individuals living outside the proposed route.

proceeding to the hypotheses, the following two figures identify the extent to which local and national groups do or do not differ in their framing of the issue.

Figure 1 - Frame use among selected anti-Keystone XL groups



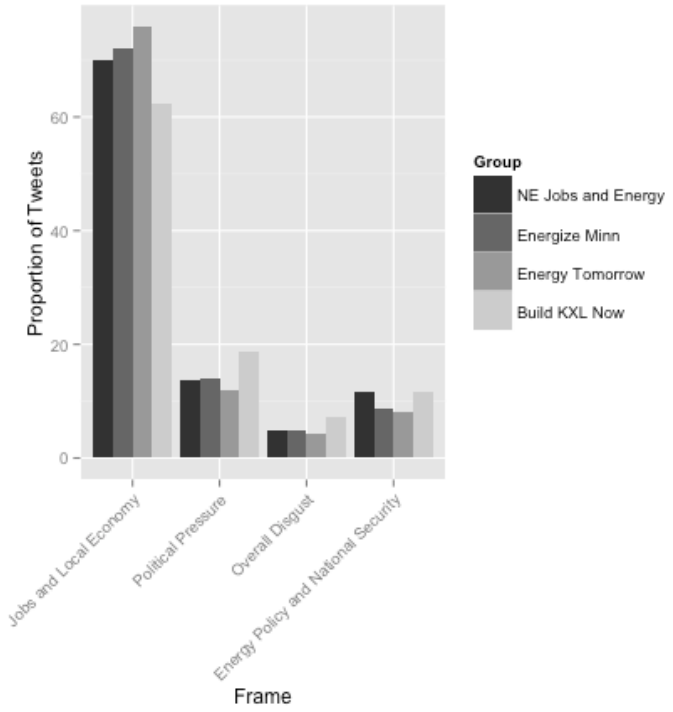

The above figure shows the anti-Keystone XL frames and their use for four selected anti- groups, two local (KXL Blockade, Bold Nebraska) and two national (350.org, Sierra Club). The purpose of this figure is to identify differences between local and national groups within the limited sample. For each group, relative frame use is calculated as a proportion of total frame use allowing for a group-by-group comparison and controlling for overall Twitter activity. The color of the bars are distinct for each group, the two darkest greys representing the local groups and the two lightest greys representing the national groups. In the figure, the local groups are on the left for each of the categories with the national groups on the right. The height of a bar represents the proportion of tweets within a particular frame category. For

this figure as well as future results anything less than a 5% difference is considered to be similar with differences only noted when differences are greater than 5%.

Figure 1 demonstrates local and national groups are similar in their frame use for a number of the categories ('spills, safety, environment,' 'lack of economic benefits', 'protest reports,' and 'anti- corporation and elites.' These are also the least used frames for all four groups, representing, on average, less than 10% of total activity. Group differences are present for the most utilized frames, 'threats to tribal lands', 'direct political action' and 'climate change.' As shown, KXL Blockade tweets about threats to tribal lands nearly two times as much as the other three groups. This frame also makes up the majority of their activity. Within this category, Bold Nebraska, the other local group, also utilizes the frame more than the two national groups. For the category, 'direct political action' Bold Nebraska relies on this frame 15% more often than the other groups, comprising their most utilized frame. This frame represents a minimum of 20% total activity for all four groups. For the category 'climate change,' the two national groups rely on this frame twice as often as the two local groups. 'Climate change' is the most frequently used frame for both national groups, accounting for approximately 38% of total activity.

The differences in framing strategies found among the four selected groups lend credence to exploration of the specified hypotheses for the population of anti- groups.

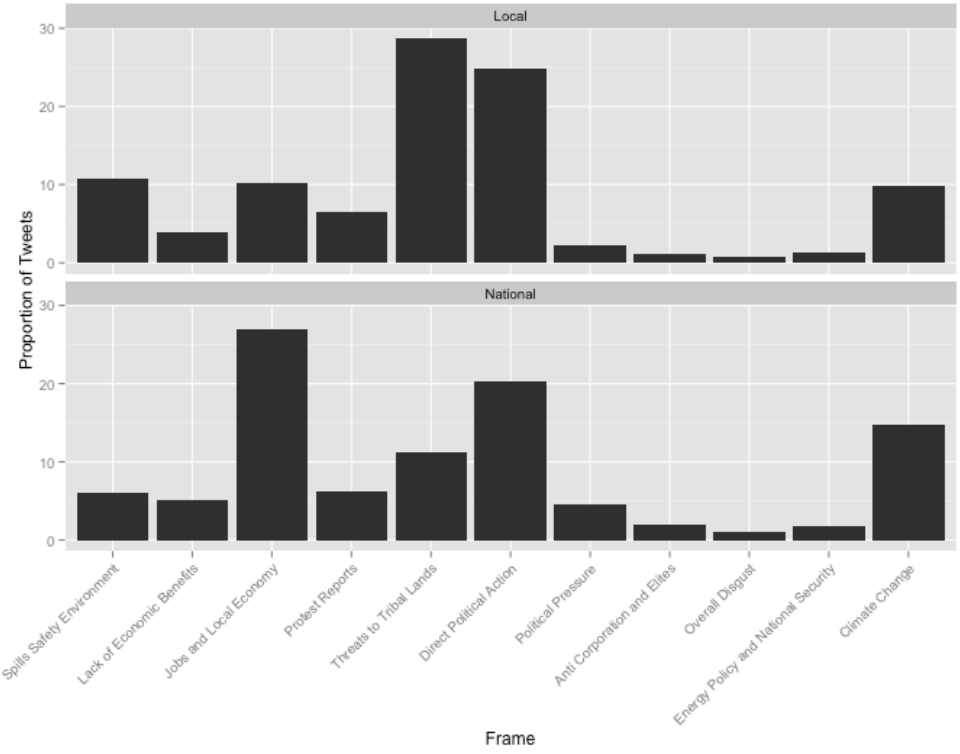
Figure 2 – Frame use among selected pro-Keystone XL groups




In the above figure, relative frame use was calculated for each category and group. Similar to Figure 1, the height of the bars can be compared within each category to identify differences between the groups. The two local groups, Nebraska Jobs and Energy and Energize Minnesota are shown by the darkest greys with the two national groups, Energy Tomorrow and Build KXL Now, are shown by the lightest greys. As shown in Figure 2, no clear differences are found between the four groups. 'Jobs and local economy' makes up a minimum of 60% of total activity for all four groups with Build KXL relying on it slightly less (about 5%) than the others. 'Political pressure' is the next most utilized frame making up between 10 – 20% of total use. Build KXL relies on this frame approximately 5% more often than the other three groups. Local and national differences are not evident among the sample.

The local and national differences found among the anti- groups, but not the pro-groups warrant additional exploration through the proposed hypotheses.

Figure 3 - Comparing the diversity of frame use among local and national groups




The first hypothesis specifies that both local and national groups will attempt to appeal to diverse publics. The first test of this hypothesis compares relative frame use among the local and national groups. The more 'spread' the activity the more diverse their strategies are. The top panel is frame use among local groups and the bottom panel is frame use among national groups. Once again the heights of the bars represent the proportion of tweets corresponding to the given frame category.

In the case of the local groups, 7 out of the 11 categories receive 5% or greater use. The frames utilized less than 5% of total activity include 'political pressure,' 'anti-corporation and elites,' 'overall disgust,' and 'energy and national security.' Only 'threats to

tribal lands' and 'direct political action' are utilized significantly more often than the other categories (accounting for nearly 50% of total activity).

Seven out of the 11 categories each account for at least 5% of total activity among the national groups as well. Those frames with less than 5% use each are the same as the local groups ('political pressure,' 'anti- corporation and elites,' 'overall disgust,' and 'energy and national security.'). The national groups have a slightly more 'spread' strategy with 3 frames receiving 15% or more use and only one frame ('jobs and local economy') used more than 20% of the time.

Figure 3 shows both local and national groups rely on a variety of frames. Consistent with the predictions of Hypothesis 1 the majority of frames are used extensively by local and national groups. This suggests that both are trying to appeal to a broad section of the U.S. population.

Figure 4 - Comparing concrete or abstract frame use among local and national groups

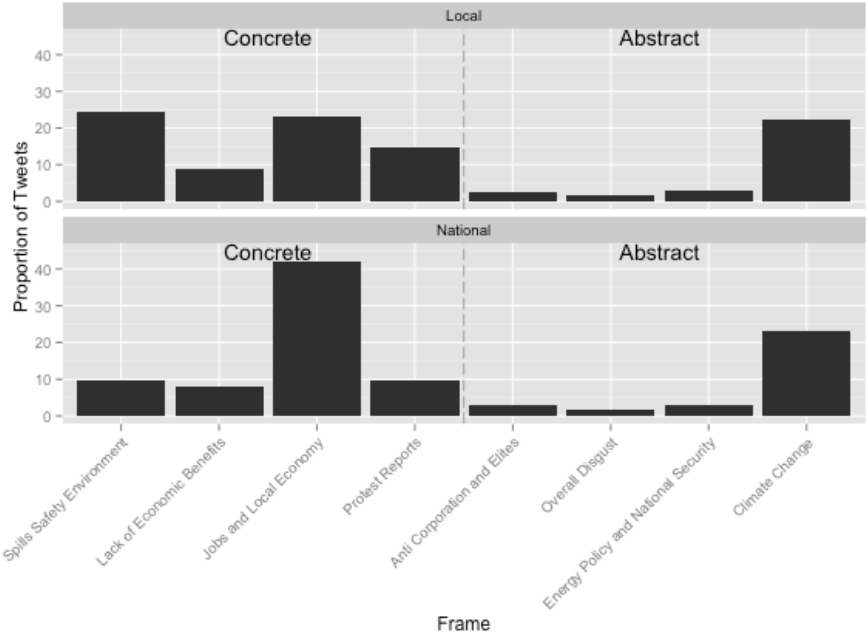


Figure 4 is also concerned with the first hypothesis - both local and national groups will rely on a variety of frames in order to appeal to diverse publics. In this case, the 'spread' of frame use, or its diversity, considers if both concrete and abstract frames are used, which vary in their appeal to proximate or distant publics.

From the eleven frame categories, eight that are more obviously concrete or abstract were selected. Abstract frames include 'energy policy and national security', 'climate change', 'anti corporations and elites', and 'overall disgust.' Concrete frames include 'jobs and local economy', 'spills, safety, environment', 'lack of economic benefits', and 'protest reports.' As you can see, the concrete frames are low-level considerations of more abstract ideas. The prevalence or lack of jobs and local economic opportunities are subordinate to energy policy. Protest is often focused on very specific concerns or wrongdoings, whereas at a higher level it may correspond with disgust in institutions and elites. Spills and environmental accidents will only directly affect those living along Keystone, whereas climate change as the result of tar sands production has global implications.

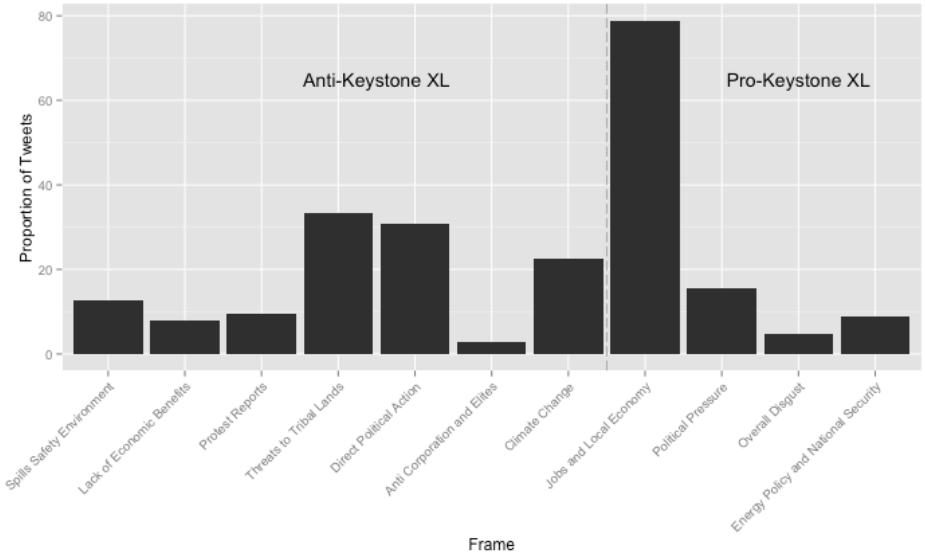
As shown by the local groups in the top panel, there is considerable spread among the four concrete frames. The least used accounts for 10% of activity and the most used accounts for 25% of activity. This is not the case with the abstract frames, with only 'climate change' utilized extensively. In addition, cumulative concrete frame use (~70% of total activity) is significantly larger than cumulative abstract frame use (~30% of total activity).

The national groups represented by the bottom panel do rely extensively on all four concrete frames, although 'jobs and local economy' accounts for more than 40% of total activity. The diversity within the concrete categories is less than that of the local groups. Within the abstract frame categories 'climate change' accounts for the majority of use

(greater than 20%) with the other frames receiving minimal use. When cumulative concrete and cumulative abstract frame use is considered, national groups also rely more on concrete frames than abstract frames (~70% compared to 30%).

The preference for concrete frame use is not in accordance with the expectations of Hypothesis 1. Although both local and national groups rely extensively on a variety of frame, most of these are concrete and may therefore appeal more to those closer to the public than those further away. This lack of abstract frame use potentially prevents appeals to more distant publics.

Figure 5 – Comparing anti- and pro- framing strategies




According to Hypothesis 2, the anti-Keystone XL groups will attempt to appeal to a more diverse public than the pro-Keystone XL groups. Again, this hypothesis is tested both in terms of the 'spread' or diversity of frame use as well as an even reliance on concrete and abstract frames, both of which suggest an attempt to appeal to a broad segment of the U.S. population.

In Figure 5, the anti-Keystone XL group frames are shown to the left of the dashed line and the pro-Keystone XL group frames are shown to the right. Seven frames were identified for the anti- groups, compared to only four identified for the pro- groups. In addition, the anti- groups rely extensively on 6 of their 7 frames (the exception being 'anti-corporation and elites'), but the pro- groups rely almost exclusively on 'jobs and local economy' (~80% of activity) with relatively minimal reliance on 'political pressure' (~20%) and 'energy policy and national security' (~10%).

In line with Hypothesis 2, the anti-Keystone XL groups rely on a greater diversity of frames than the pro- groups, as they are likely more concerned with broadening public support in order to overcome resource constraints not necessarily experienced by the pro-groups.

Figure 6 – Comparing concrete and abstract frame use among anti- and pro- groups

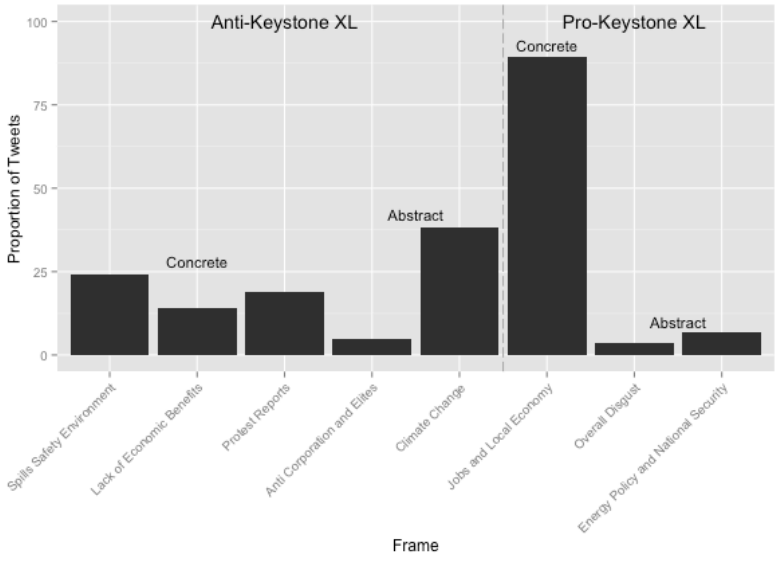



Figure 6 assesses differences in concrete and abstract frame use between the anti-Keystone XL and pro-Keystone XL groups. The anti- group frames are shown to the left of the dashed line with the pro- group frames shown to the right. The concrete and abstract

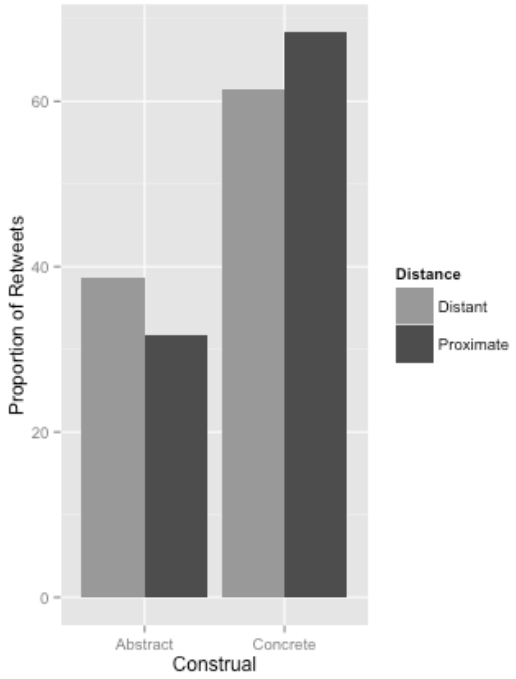
categories are labeled accordingly. The height of a bar represents the proportion of tweets corresponding to that frame category within the anti- or pro- sides. Again, concrete and abstract frames were chosen based on their applicability and, therefore, the number of concrete and abstract categories are not indicative of diversity.

As shown by the figure, the anti- groups utilize both concrete and abstract frames. Confined only to these categories, approximately 40% of their tweets correspond to the concrete frames with 60% corresponding to the abstract frames (mostly 'climate change'). In the case of the anti- groups, concrete and abstract frame use is comparable.

The pro-Keystone XL groups rely extensively on the concrete frame 'jobs and local economy' (~92%), with almost no reliance on the two abstract frames. In the case of these groups, concrete use significantly outweighs abstract frame use.

In accordance with Hypothesis 2, the anti-Keystone XL groups attempt to appeal to a diverse segment of the U.S. population through mixed use of concrete and abstract frames. This is not the case for the pro- groups that are not as incentivized to appeal broadly to both proximate and distant publics.

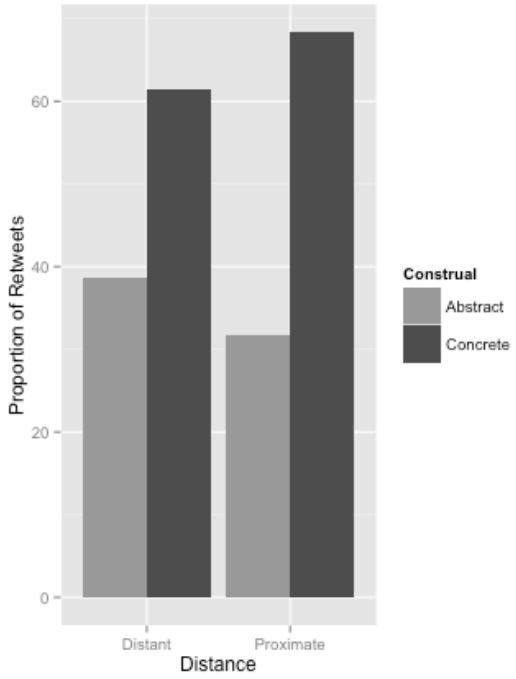
Figure 7 – Comparing the proportion of concrete and abstract retweets by distance




Hypothesis 3 specifies the persuasiveness of group frames to the public varies by distance from the proposed pipeline. The hypothesis is broken into two primary comparisons. The first proposes those individuals living within states along the proposed route are more persuaded by, and more likely to retweet, concrete frames where as those living further away are more persuaded by, and more likely to retweet, abstract frames. In Figure 7, the cumulative proportion of abstract retweets are on the left and the cumulative proportion of concrete retweets on the right. Retweets coming from distant users are light grey and those coming from proximate users are dark grey.

In line with Hypothesis 3a and 3b, proximate users retweet concrete frames more often than distant users and distant users retweet abstract frames more often than proximate users. Thus, as CLT would predict, information that aligns mindset (construal) to location is more persuasive than information that does not.

Figure 8 - Comparing frame preference by distance




The second part of the hypothesis proposes those individuals living within states along the proposed route are more persuaded by concrete frames than abstract frames whereas those living further away are more persuaded by abstract frames than concrete frames. In Figure 8, the proportion of retweets from distant users is on the left and the proportion of retweets from proximate users is on the right. The light grey color corresponds to abstract frames and the dark grey color corresponds to concrete frames.

In line with Hypothesis 3c, proximate users are more likely to retweet concrete frames (~68%) than abstract frames (~32%). Contrary to the expectations of Hypothesis 3d, distant users are also more likely to retweet concrete frames (~61%) than abstract frames (~39%).

Together the results demonstrate some support for the relationship between CLT and retweet preference. In the case of Keystone XL, there is a greater preference for concrete

frames among proximate users than distant users and a greater preference for abstract frames among distant users than proximate users. However, both segments of the population are more persuaded by and more likely to retweet concrete frames than abstract frames.

**Discussion and Conclusion**

This work makes two primary contributions: First, it applies Construal Level Theory from social psychology, in combination with membership, ideological, and resource considerations, to assess how group strategies vary. Second, it assesses the perceived effectiveness of group strategies depending on the geographic location of the public. According to CLT, individuals rely on concrete considerations to evaluate proximate issues and turn to abstract features to assess distant issues. As such, information that matches mindset and location should be more persuasive than information that does not.

I apply this cognitive consideration to groups, arguing that, in general, they will deploy strategies that have the potential to appeal to proximate and distant users in order to broaden their memberships. However, this relationship is moderated by ideological and resource considerations. More liberally oriented groups, whether they are local grassroots organizations or large national groups, both rely extensively on public support to overcome resource constraints. Alternatively, more conservatively oriented groups, which are often backed by corporate interests even in the case of local or grassroots interests, are not as reliant on a diverse membership to accomplish their goals and therefore not as motivated to appeal broadly.

In the case of Keystone XL, both local and national groups rely extensively on a variety of frames to attract support from a diverse section of the U.S. public. Although CLT specifies abstract and concrete messaging vary in their appeal depending on the location of

the receiver, both local and national groups rely more on concrete frames than abstract frames. One explanation for this is these groups are responding to particular features of this policy issue, namely that local opposition and support have influenced the pipeline's progress through state and congressional action. Because of this, they may be more concerned with appealing locally than nationally. Another explanation is these concrete frames are believed to be more effective for other reasons than their construal level. For example, jobs and local economy may be a more effective frame based on its strength relative to other frames (Druckman, Fein, & Leeper, 2012).

The findings also indicate the extent to which groups utilize a mixed frame strategy to reach outside their pre-existing networks depends on their reliance on public support. The results indicate that anti-Keystone XL groups rely on a greater number of frames than pro- groups and tend to utilize a mix of concrete and abstract frames compared to the pro- groups that almost exclusively use the concrete frame 'jobs and local economy.' The anti- movement appears to be motivated to expand public support and appeal widely more so than the pro- movement.

In the case of Keystone XL, anti- groups are disadvantaged in two ways. First, they are up against other corporate and 'astro-turf' entities that are not financially constrained. Second, they seek to prevent political change and therefore more apt to turn to alternative approaches (from Karpf 2012). Local and national groups apart of the pro- movement are likely not as reliant on a broad section of the public for financial or political support.

This work also addresses the effectiveness of group messaging based on the location of the receiver. Twitter users can indicate the utility or persuasiveness of a tweet by replying to the tweet directly or retweeting it to others in their networks. In accordance with CLT,

tweets matching mindset to location should be retweeted more often than those that do not. The findings presented here are mixed. While there are differences in persuasiveness due to location, concrete frames appear to be overall more persuasive than abstract frames.

Not only are groups relying more on concrete frames than abstract frames, the public seems to prefer this approach, subsequently retweeting these frames more often. The data do little to unpack the true source of increased concrete frame reliance for the issue of Keystone XL. On the one hand, groups may be utilizing concrete frames because this is what their supporters demand, on the other, the public may simply appear to prefer concrete frames because that is what the are exposed to the most. Recent work suggests that groups and politicians interested in motivating pubic climate change mitigation activities should be relaying the personal health and local environmental consequences of climate change, making the issue more relevant to these individuals (Ansolabehere & Konisky, 2012; Scannell & Gifford, 2013).

A closer examination into each of these groups can help explain some of the findings discussed above. In addition, to further understand how local and national groups are interacting with the public and each other, it would be worthwhile to examine the extent to which they mention or reply to one another on Twitter. From a network standpoint it would be interesting to know just how connected each group is to the others within and outside their networks. In addition, this work would benefit from applying the expectations drawn here to other issue areas with local and national consequences.

Finally, this work places great emphasis on what groups are doing with little consideration for whether their efforts do or do not matter. In the area of policy change do group framing strategies on social media matter and to what ends? I argue group efforts on

social media have significant potential given higher rates of political knowledge and participation among social media users. The correct framing strategy, which resonates with an activated public, may serve to move online participation off-line. In the case of Keystone XL, groups have effectively organized thousands of protesters in D.C., Nebraska, and New York. It is also clear they have united interests that would otherwise be at odds with one another. As frames were believed to be responsible for similar occurrences prior to the advent of social media, they may continue to serve similar roles in the modern day communication environment.

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**Conclusion: Implications and Extensions of Distance**

Understanding public opinion and political communication is a complex process. Much of the prior scholarship has served to provide case specific explanations, which are often at odds with one another. This work seeks to move beyond such debates, arguing that the observed variations may be due to perceived psychological distance. Based on the Construal Level Theory of psychological distance, items, event or issues are evaluated differently depending on perceived distance, whether it be social, hypothetical, temporal or spatial. Applied to political science, CLT can provide a general explanation for the types of considerations one may rely on when forming an opinion or communicating about the issue and how this process changes due to perceived distance from the issue. Thus, differences found in the scholarship may not reflect significant debates, rather just changes in perceived distance on the part of the public.

This work set out to test whether distance matters to public opinion and political communication. A survey experiment combined with content analysis of Twitter data allowed for a multi-method evaluation of the relationship between CLT and opinion and communications. Although distance includes the social, hypothetical, and temporal, this work confined the concept to geographic distance, specifically in the case of Keystone XL. The data presented here lend mixed support for the utility of applying CLT to real world political settings.

In the more controlled setting of a survey experiment, distance is shown to moderate framing effects. When asked about the proximate issue of Keystone XL, respondents' answers reflected the imbedded pro-development frame. However, when asked about the distant issue of offshore oil drilling, respondents' answers reflected underlying values,

mainly party identification. In this case, as CLT would predict, proximity lead to a concrete evaluation of Keystone XL, inclusive of the provided information. Distancing allowed these individuals to ignore any provided information that was out of line with their underlying party identification and thus, the pro-development frame had a negligible effect. In this setting, distance helped inform how individuals form their opinions on energy policy.

When communications were assessed in a real world online communication setting, the relationship between distance and political communication became less clear. Chapter 2 examined the extent to which public communications (tweets and retweets) reflect distance. Although CLT would suggest those more proximate to Keystone XL should utilize concrete frames and language in their tweets and those more distant from the issue should turn to abstract frames and language, the results do not entirely substantiate this. In the public's own tweet composition, frame use and tweet construction do not reflect distance. In general, tweets are as likely to be abstract or concrete whether they are coming from those closer or further from the pipeline. However, CLT is reflected in public retweets. Public tweets that matched mindset to location (abstract to distant and concrete to proximate) were more likely to be retweeted than those that did not. This suggests that retweets may represent a similar cognitive process to other media effects, such as framing, with distance affecting the process. Alternatively, tweet composition may be similar to political discussion or interpersonal conversation, subsequently not exhibiting similar effects.

The final analysis takes CLT a step further, arguing that political advocacy groups should reflect distance in their strategies, controlling for other considerations. In the modern political communication environment the costs of information provision are so low that all groups can attempt to appeal to a broad section of the U.S. public if they so choose. In

general, it appears as though the anti- and pro-Keystone XL advocacy groups are doing just that, simultaneously reaching out to more localized and more nationalized publics. It is perhaps of no surprise that the pro-Keystone, corporate-backed groups do this less so than their anti- counterparts, given greater resource availability and alternative means of political pressure (lobbying, advertising, etc.). However, similar to the results from Chapter 2, groups appear to favor concrete frames, regardless of whether they are appealing locally or broadly. Moreover, the concrete frames provided by groups were more likely to be retweeted by the public, other groups, media, and elites, again regardless of location.

Taken together, the results suggest a narrow application of distance to evaluating public opinion and political communication. It appears as though the real political environment is simply too messy to be entirely explained by distance. Obviously, distance is one of many considerations affecting attitudes and communications. For example, in the case of the public and group Twitter communications, frame strength, not necessarily related to distance but as a result of other considerations, may be more important in tweet composition and the likelihood of retweeting something. The favoritism towards concrete messaging is inline with recent arguments made by Ansolabehere and Konisky (2012) and Scannell and Gifford (2013), suggesting those interested in motivating support for climate change mitigation should talk about personal, individual-level concerns, such as health and pollution. In the case of Keystone XL, concrete frames dealing with jobs, local economy, spills and environmental risk were certainly more popular on average than ideas about national energy, security or climate change.

Future work can tease out the messiness presented here. First, it is necessary to assess the role of distance in other issue areas and across the various distance domains. As a

component of this, research may benefit from using questionnaires to measure perceived psychological distance, as opposed to assuming it based on real proximity. Second, in order to adequately control for distance, additional studies should manipulate distance through a framing treatment, after which it is possible to more adequately compare variations in attitude formation and communications. Third, as geospatial data increases in availability it will be possible to isolate the very specific, fine-grain effects of distance pertaining to other energy issues such as high powered transmission lines, oil transport by rain, fracking, and the transportation of mega-loads. This will help to provide a more general application of the theory across the political spectrum. Finally, this research would benefit greatly from a theoretical argument for when and how distance may help guide our understanding of public opinion and communication.

Distance has consequences for public opinion and political communication, as identified here, but it also has potential implications for policy-making and management more broadly. Because Construal Level Theory tells us something about how items and events are evaluated, it can inform our understanding of groups and mobilization, bureaucratic decision-making, congressional behavior, campaigns, and other areas of political science. While experimental work is helpful for explaining the mechanisms involved in CLT there is a need for greater application in observational studies. Especially important will be developing a theoretical and empirical connection between how opinions and behaviors are affected by psychological distance and the bearing this may have on policy outcomes. For example, the theory of punctuated equilibrium, developed by Brian Jones and Frank Baumgartner, relies on limitations to information processing as an explanation for

policy changes and stability. I argue that psychological distance may also account for and even predict policy attention and inattention.

In addition, psychological distance, or proximity to risk, is likely to influence public opinion and action on many risks, such as floods and hurricanes. Thus, environmental management offers an opportunity to study how distance manifests in policy outcomes. Planning and development, city, county, and state policy activities, mitigation and post-disaster funding are just some of the indicators that may reflect salience. In each of these there is a strong need for science to inform policy, but often psychological distance (in the form of risk that occurs further away, later in time, or to others) and additional political constraints interfere with this connection.

**References:**

Ansolabehere, S., & Konisky, D. M. (2012). The American Public's Energy Choice. Daedalus, 141(2), 61-71.

Scannell, L., & Gifford, R. (2013). Personally relevant climate change the role of place attachment and local versus global message framing in engagement. Environment and Behavior, 45(1), 60-85.

**Appendix A**

Survey Questionnaire
YOU ARE REQUIRED TO READ THIS CONSENT FORM BEFORE PROCEEDING TO THE SURVEY
Thank you for participating in this survey on public opinion regarding energy. This is a PhD student research project at the University of California, Santa Barbara that will contribute to a better understanding of how public opinions are formed.
The survey should take approximately 10 minutes to complete. Your participation is entirely voluntary. There are no risks associated with this survey. We will have exclusive access to the answers you provide. Any personal or sensitive information collected will be separated and coded. Confidentiality will be maintained and identifying data will be destroyed. You must be 18 years of age to participate in this survey.
If you have any questions or concerns regarding this survey or would like to withdraw your responses without prejudice, please contact Sarah Anderson (Project Manager) at sanderson@bren.ucsb.edu or (805) 893-5886 at any time. Additionally, if you have any concerns regarding the intentions or procedures in this survey, please contact Kathy Graham (UCSB Office of Research) at graham@research.ucsb.edu or (805) 893-3807.
Your participation is greatly appreciated.
Sincerely,
Heather Hodges (hehodges@gmail.com) and Mary Collins (mbcolli@gmail.com)
PhD Students
University of California, Santa Barbara

Q1. What state do you live in? [record 2-digit alpha character]

Series 1: Social Ideology

People in our society often disagree about how far to let individuals go in making decisions for themselves. How strongly do you agree or disagree with each of these statements? [strongly disagree, moderately disagree, slightly disagree, slightly agree, moderately agree, strongly agree; items prefixed by “C” or “E” were reverse coded]

Q2. IINTRSTS. The government interferes far too much in our everyday lives.
Q3. CHARM. Sometimes government needs to make laws that keep people from hurting themselves.
Q4. IPROTECT. It's not the government's business to try to protect people from themselves.
Q5. IPRIVACY. The government should stop telling people how to live their lives.
Q6. CPROTECT. The government should do more to advance society's goals, even if that means limiting the freedom and choices of individuals.
Q8. CLIMCHOI. Government should put limits on the choices individuals can make so they don't get in the way of what's good for society.
Q9. People in our society often disagree about issues of equality and discrimination. How strongly do you agree or disagree with each of these statements? [strongly

disagree, moderately disagree, slightly disagree, slightly agree, moderately agree, strongly agree]

Q10. HEQUAL. We have gone too far in pushing equal rights in this country.

Q11. EWEALTH. Our society would be better off if the distribution of wealth was more equal.

Q12. ERADEQ. We need to dramatically reduce all types of inequalities.

Q13. EDISCRIM. Discrimination against minorities is still a very serious problem in our society.

Q14. HFEMININ. Society as a whole has become too soft and feminine.

Series 2: Political Knowledge/Ideology

Q15. Whose job is it to determine if a law is constitutional or not? [the president, Congress, or the Supreme Court]

Q16. How much of a majority is required for the U.S. Senate and House to override a presidential veto? [one-third, one-half, two-thirds, unanimous]

Q17. Which party has the most members in the House of Representatives at this time? [Republican or Democratic]

Q18. Which party is more conservative? [Republican or Democratic]

Q19. Do you think of yourself as closer to the Republican Party or to the Democratic Party? [standard 7-point scale where 1 is closest to the Republican Party, 4 is neutral, and 7 is closest to the Democratic Party]

Series 3: Pre-Treatment – Economic Stake/Media Usage/Occupation

Q20. We are interested in how people are getting along financially these days. Would you say that you (and your family) are [better off, worse off, or about the same financially] than you were a year ago?

Q21. Have you been unemployed in the last three years? [yes, no]

Q22. Do you think that the problem of unemployment would be handled better by [Democrats, Republicans, or about the same by both]?

Q23. Would you say that the government is doing a [good job, only a fair job, or a poor job] at handling unemployment?

Q24. To what extent do you approve of the way Barack Obama is handling his job as president? [Strongly approve, generally approve, generally disapprove, strongly disapprove, no opinion]

Q25. Are you currently employed in the oil industry, the construction industry, agriculture, local/federal government, other, or currently unemployed? [oil industry, construction industry, agriculture, local/federal government, other, or currently unemployed]

Q26. Do you have any financial investments in the oil industry that you know of? [yes, no]

Q27. How frequently do you seek out news content of any source? [daily, a few times a week, once a week, a few times a month, once a month, less than once a month]

Q28. Which of the following media sources (either online or print) are you *most* likely to seek news content from? [CNN, Fox, MSNBC, ABC News, USA Today, Huffington Post, New York Times, Washington Post, Local or Other]

Q29. What do you think are the most important problems facing this country? [three responses in order of preference; national security, health care, the quality of the environment, the deficit, unemployment, availability and affordability of energy, crime and violence, gas prices, illegal immigrants, race relations, drug use, the size and power of federal government, the social security system, hunger and homelessness]

Q30. With which one of these statements about the environment and the economy do you most agree – [protection of the environment should be given priority, even at the risk of curbing economic growth, or economic growth should be given priority, even if the environment suffers to some extent]?

*Transition Statement:* We are now going to ask you a few questions related to domestic energy production. We understand that people have differing views of this topic and would appreciate knowing what you think.

Series 4: Treatment: *25% of respondents exposed to treatment A*
*25% of respondents exposed to treatment B*
*50% of respondents exposed to no treatment*

| Pipeline Group: 50% of the sample | Offshore Oil Group: 50% of the sample |
|---|---|
| **Q29: The Keystone XL is a pipeline proposed to carry natural gas from Canada to the United States. [True or False]**<br>**Pipeline Concept (50% of sample)**<br>The current Keystone Pipeline carries Canadian Tar Sands oil from Canada to Illinois and Oklahoma. The Keystone XL is a proposed expansion project that would connect the Keystone to refineries on Texas' gulf coast. | **Q29: Most of the oil used by American's comes from the Gulf of Mexico. [True or False]**<br>**Offshore Oil Concept (50% of sample)**<br>The US has a long history of offshore oil drilling dating back to the late 1800's and early 1900's. In 2010 there was a new proposal to open 167 million acres of ocean waters along the Atlantic coastline, the eastern Gulf of Mexico and the north coast of Alaska to oil and natural gas drilling. |
| **25% of Total Sample**<br>**Treatment A:**<br>"Approval of this project is necessary to ensure national security, generate a long term domestic energy source, provide much needed jobs, and reduce the cost of gas." | **25% of Total Sample**<br>**Treatment B:**<br>"Approval of this project is necessary to ensure national security, generate a long term domestic energy source, provide much needed jobs, and reduce the cost of gas." |
| Q30: From what you know and have read, do you think the U.S. government should or should not approve the building of this pipeline? [definitely should not, probably should not, probably should, definitely should] | Q30: From what you know and have read, do you think the U.S. government should continue to expand our offshore oil development? [definitely should not, probably should not, probably should, definitely should] |
| Q31: Please tell me if you are personally worried about damage to private property, the environment or agricultural land caused by the construction of the pipeline? [a great deal, a fair amount, only a little, not at all] | Q31: Please tell me if you are personally worried about damage to private property or the environment caused by offshore oil development? [a great deal, a fair amount, only a little, not at all] |

Series 5: Demographics

Q32. What is your gender? [male, female]
Q33. What is your highest level of education? [less than high school, high school graduate some college, college graduate, professional/graduate degree]
Q34. What is your full birthdate (month/day/year)
Q35. What race to you most closely identify with? [White, African American, American Indian/Native Alaskan, Asian/Pacific Islander, Latin American, Other]
Q36. What is your total household income? [less than $20,000 per year, $20,000 to less than $40,000 per year, $40,000 to less than $60,000 per year, $60,000 to less than $80,000 per year, $80,000 to less than $100,000 per year, $100,000 to less than $200,000 per year, greater than $200,000 per year]